

DRAFT
REGIONAL COMPREHENSIVE PLAN

December 1993

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MISSION STATEMENT

TO ENHANCE THE QUALITY OF LIFE OF ALL SOUTHERN CALIFORNIANS
BY WORKING IN PARTNERSHIP WITH ALL LEVELS OF GOVERNMENT,
THE BUSINESS SECTOR, AND THE COMMUNITY AT LARGE
TO MEET REGIONAL CHALLENGES AND
TO RESOLVE REGIONAL DIFFERENCES.

818 West Seventh Street, 12th Floor • Los Angeles, California 90017-3435 ☐ (213) 236-1800 • FAX (213) 236-1825

November 22, 1993

Dear Member of the Southern California Community:

I would like to present the Draft Regional Comprehensive Plan (RCP) and the Draft Regional Mobility Element (RME). These are the latest products of SCAG's continuing efforts to provide a long range plan and decision-making framework for the region. They are intended to help meet the challenges of the region's continuing growth and economic changes.

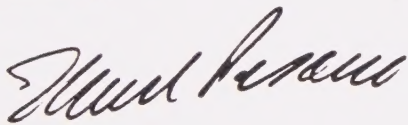
These documents have been prepared by the Staff at SCAG with substantial assistance and input from subregional organizations, County Transportation Commissions, State and federal agencies, other regional organizations, and numerous other public and private parties. They have not been endorsed or approved by any policy body. The SCAG Regional Council will hold extensive public discussion on this Draft Plan prior to its taking any action on the plan during March and April of 1994.

The Draft Regional Mobility Element is the latest update of the Regional Transportation Plan required by federal and state law. It responds to the requirements of the Intermodal Surface Transportation Efficiency Act (ISTEA) and the state and federal Clean Air Acts. It is the basis for more than \$24 billion in federal, state and local investments in transportation that will be made over the next seven years. Without the RME, funding would be stopped until the plan is complete and meets all requirements.

I encourage you to review these plans carefully. SCAG will be hosting workshops for the public in each of the thirteen subregions during the month of January. Notices will be published in local newspapers, and individual notices will be mailed on request. You are encouraged to attend these, and are also welcome to send in your written comments. The Draft Environmental Impact Report will be released on December 10th, and will be reviewed together with these plans. There are also documents which provide technical support to the individual chapters of the RCP, and which are available upon request.

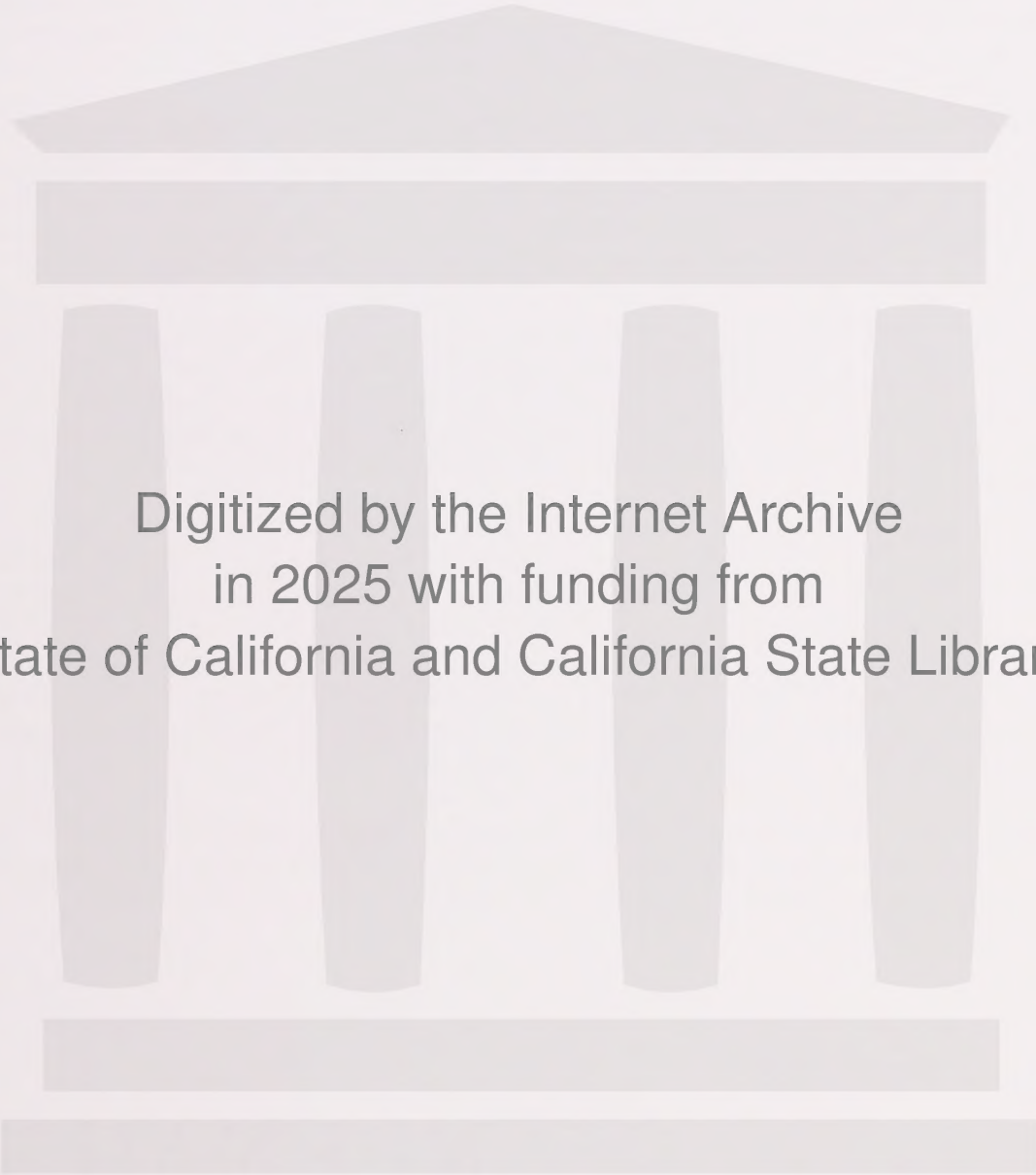
Your comments will be important to SCAG in preparing the final plan documents for adoption, and your contributions will help ensure the kind of participation and support which the plan will need as we face these challenges together.

Sincerely,



MARK PISANO,
Executive Director

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FOREWORD

The Draft Regional Comprehensive Plan is a compilation of the summaries of Plans for the Southern California Region. Some of these are required by federal or state law; some are products of operating agencies that produce them in the course of meeting their obligations; and some respond to direction of the SCAG Regional Council to examine issues prior to determining whether to include them in the Regional Comprehensive Plan. The full text of the Regional Mobility Element is being published in a separate volume. The Draft Environmental Impact Report for this plan will be released on December 10, 1993.

This draft plan was developed in cooperation with numerous agencies, including Subregions of Southern California, County Transportation Commissions, Caltrans, Metropolitan Water District, the California Energy Commission, the Bureau of Land Management of the Department of the Interior, the South Coast Air Quality Management District, the Ventura Air Pollution Control District, and other parties, both public and private.

Reviews of this Draft will be scheduled throughout Southern California between January and March 1994, prior to the proposed adoption in April 1994. Written comments will be accepted throughout the public comment period which closes March 4, 1994.

The preparation of this report was financed in part through grants from the United States Department of Transportation Federal Transit Administration; from the United States Department of Transportation Federal Highways Administration; and from the State of California.

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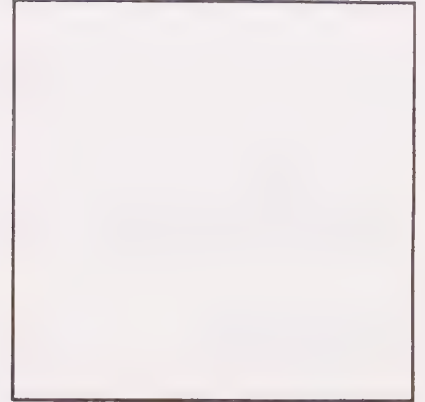
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INTRODUCTION

This plan represents a major departure from all previous planning for Southern California in several respects. First, it is comprehensive. Second, it is the product of a joint, multi-agency effort. In addition to SCAG, other regional agencies including in particular the Bureau of Land Management, the Metropolitan Water District and the California Energy Commission, thirteen subregions¹ and the local governments within the SCAG region have all contributed to its preparation. Third, it is only the first in what will be a series of plans, representing continuing updates and refinements to this plan as conditions evolve and understanding improves. And finally, it explicitly recognizes that the "horizon date" of 2010 (2015 for the Regional Mobility Element), toward which the plan is focused, is only an interim date. Conditions will continue to evolve beyond that date, and this plan therefore is only the groundwork toward that more distant future.

This document is also a first in that it sets a broad set of goals for the region, and identifies strategies for agencies at all levels to use in guiding their decision-making toward implementation of the proposals. Southern California has never, in the past, agreed on such goals, and their adoption by SCAG and its constituent members represents an important step forward in defining a regional identity toward which all can work. It is an identity which has growing acceptance, an acceptance in part due to the shared understandings which have come about as a result of participation in the process of developing the plan.

SCAG has recently undergone a significant transformation as an agency. In February of 1992, the General Assembly adopted new bylaws that expanded the Executive Committee from 23 to 70 members, and renamed it the Regional Council. Further, it required that future SCAG planning be comprehensive, and directed such planning be undertaken in a "bottom-up, interactive" mode. This plan responds to that mandate.

¹ See pages xiii-xiv for list and map of the Subregions. A list of the constituent members of the subregions is found in Appendix A.

Subregions were identified, either as existing organizations of local governments, or brought together with SCAG assistance to provide input. This input is reflected throughout the plan, and forms the basis of the approach, which recognizes both the commonalities and the diversity of the subregions in meeting the challenges of growth and change in this region.

This plan is designed to meet a number of purposes. It is intended to serve the region as a general guide to the growth and changes that can be anticipated during the next 15 to 20 years. It provides a general view of the plans of the various regional agencies that will affect local governments, or that respond to the significant issues facing Southern California. And, it summarizes the plans which describe how the region will meet certain federal and state requirements with respect to Transportation, Growth Management, Air Quality, Housing, Hazardous Waste Management, and Water Quality Management.

It is not a proscription for local governments. Rather, it is a comprehensive overview of the region, focusing on its growth and problems, and it suggests a strategy that local governments may elect to use, which should assist them in meeting these challenges. This strategy is based on the recognition that all of these problems and issues are interconnected, and none can be meaningfully dealt with in isolation from the others. Hence, it is comprehensive and treats Southern California as a metropolitan system. It also derives from the concept of "bottom-up interactive" planning. It is a dialogue between the local governments which make up SCAG on the one hand, and the federal and state requirements on the other. This dialogue forms the basis for the proposals and policies contained in the plan. Yet, it is broader than just a response to these mandates: it suggests strongly that none of these mandates will be able to be met unless the region looks at its problems as a whole, and elects to address all of them simultaneously. Concentrating on a few issues would only mean that others, just as critical, will go ignored until they too reach a crisis. With planning and foresight, it is possible to avoid this type of crisis-response planning, which is both far more costly in the long-run and far less effective.

The plan is also a living document; it is intended to be continuously under revision and update so that it stays current, and provides a response that is both long-range, strategic and responsive to a constantly evolving situation.

With respect to the specific requirements, SCAG has the following mandates:

SCAG is designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuous, comprehensive, and coordinated transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. §134(g)-(h), 49 U.S.C. §1607(f)-(g) et seq., 23 C.F.R. §450, and 49 C.F.R. §613. SCAG is also the designated ***Regional Transportation Planning Agency***, and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080.

SCAG is responsible for developing the demographic projections and integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan***, pursuant to California Health and Safety Code Section 40460(b)-(c). SCAG is also designated under 42 U.S.C. §7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

SCAG is responsible under the Federal Clean Air Act for determining *Conformity* of Projects, Plans and Programs to the Air Plan, pursuant to 42 U.S.C. §7506.

SCAG is the authorized regional agency for *Inter-Governmental Review* of programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

SCAG reviews, pursuant to Public Resources Code Sections 21083 and 21087, *Environmental Impact Reports* of projects of regional significance for consistency with regional plans [California Environmental Quality Act Guidelines Sections 15206 and 15125(b)].

Pursuant to 33 U.S.C. §1288(a)(2) (Section 208 of the Federal Water Pollution Control Act), SCAG is the authorized *Areawide Waste Treatment Management Planning Agency*.

SCAG is responsible for preparation of the *Regional Housing Needs Assessment*, pursuant to California Government Code Section 65584(a).

SCAG is responsible (with the San Diego Association of Governments and the Santa Barbara County/Cities Area Planning Council) for preparing the *Southern California Hazardous Waste Management Plan* pursuant to California Health and Safety Code Section 25135.3.

The three partner agencies contributed to the preparation of this plan. The Water Resources chapter was largely prepared by the Metropolitan Water District, the largest of the water suppliers in the region, together with the other major suppliers. They are responsible for the provision of adequate supplies of safe water for the residents of the region. The Energy component was prepared by the California Energy Commission, the state agency responsible for long-range energy planning for the entire state. This chapter is a disaggregation of the state plan governing the SCAG region, and was prepared specially for SCAG by the Commission. The Open Space component was prepared by the United States Department of the Interior Bureau of Land Management (BLM) as a composite of existing plans from federal, state, and regional agencies responsible for land management.

There are two types of components in the plan: those that respond directly to federal or state mandates, and those that are included in the interest of comprehensiveness. These latter are indispensable to the understanding of the former: the mandates can only be addressed if all the issues, especially the economic future of the region, are understood and accounted for. Without such a background, planning for transportation or air quality or housing rests on a very unstable foundation, especially since the Region is undergoing the most dramatic economic restructuring since the end of World War II.

It must be clearly noted that the inclusion of any component or issue in this plan in no way changes the mandates, or adds to them. These additions are intended to serve only as guidance and a framework to inform decisions on the mandates, on local plans, and on governance in general as it seeks to improve the quality of life for all the regions residents.

This Regional Comprehensive Plan document is the summary of a great quantity of analysis of conditions in, and projections for, the region. Most of the RCP chapters are excerpted from more detailed analyses which are found in separate reports from which are available to any who wish to see them. The thirteen subregions

of the SCAG region have prepared individual input documents, reports and in some cases, subregional plans. These have been used to develop and support the RCP proposals and recommendations, and are referenced throughout the document. They are also available to any person seeking further information about a particular subregion. For copies of either the background documents or the subregional documents, please contact SCAG directly.

Finally, it must be stated that while this document contains the issues and concerns that the staff believes to be important. The final format of the document is still subject to continued evolution. The Standing Committee on Planning will make a final recommendation to the Regional Council on the format, in accordance with the following Resolution, adopted January 7, 1993:

"The RCP, with the involvement of all the SCAG subregions, shall incorporate as separate elements the mandatory components (Mobility, Growth Management, Housing, Air Quality, Water Quality and Hazardous Waste) with the remaining components, including solid waste, either being incorporated as relevant into the above required elements or incorporated as separate elements as appropriate and justified and approved by the Executive Committee (Regional Council). The RCP, including the appropriate and approved components is scheduled for completion by December 1993."

Since this resolution was adopted, the Regional Council has extended the date for plan adoption which is now tentatively scheduled for April 1994.

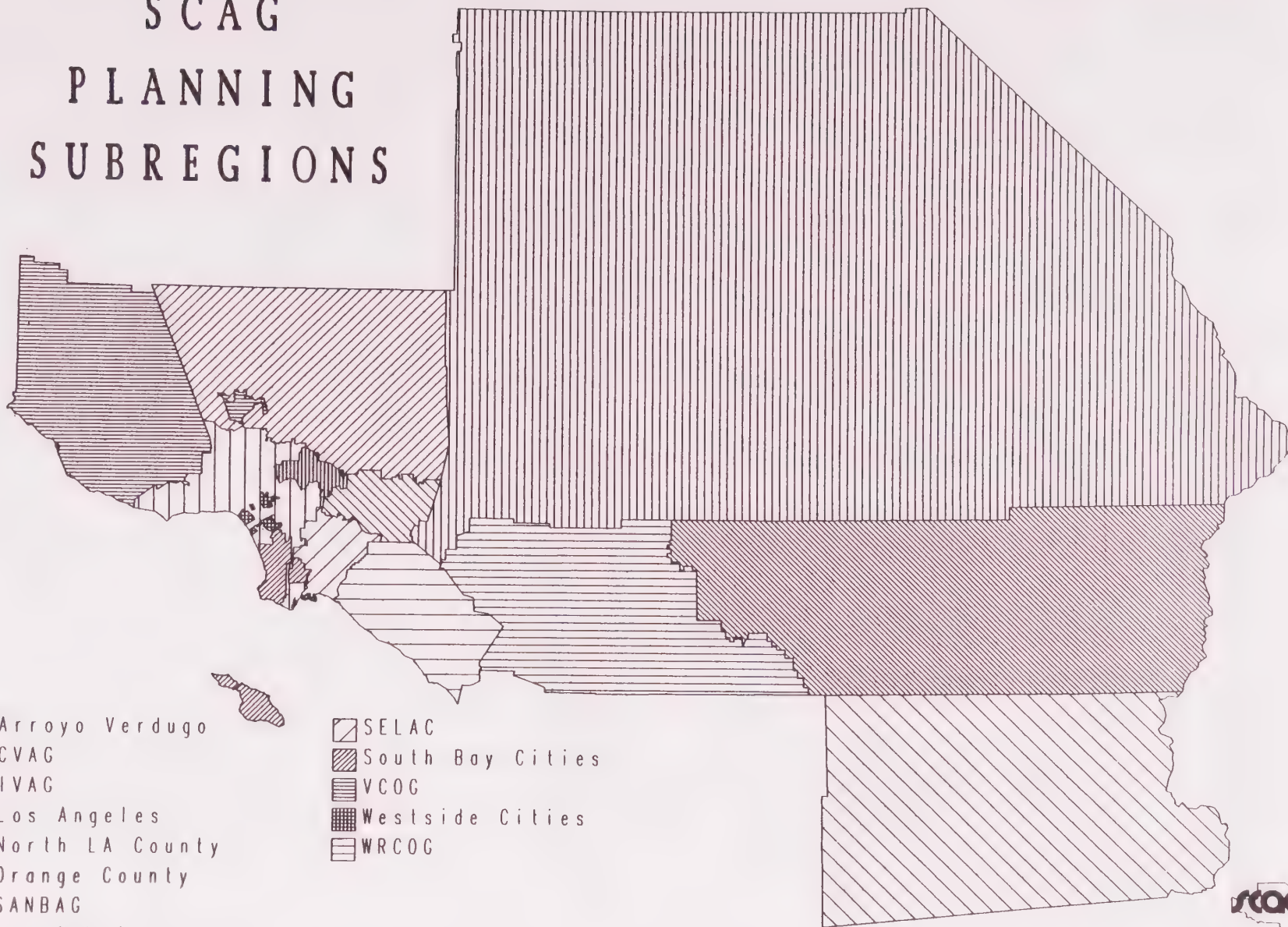
A note on Subregional Input

Input has been received from all subregions. It is available in its unedited form to all who would like to review it. In addition, each chapter in this document reflects this input, and where subregions have either proposed ideas or projects that have been included in the plan, or where they have supported staff recommendations, this is noted in a footnote. Occasionally, there may be a divergence between subregions or between a subregion and the SCAG staff. This, too, is noted.

Subregions of Southern California

Arroyo Verdugo
Coachella Valley Association of Governments
Imperial Valley Association of Governments
City of Los Angeles
North Los Angeles County
Orange County
San Bernardino Associated Governments
San Gabriel Valley Association of Cities
South Bay Cities Association
South East Los Angeles County
Ventura Council of Governments
West Side Cities
Western Riverside Council of Governments

SCAG PLANNING SUBREGIONS

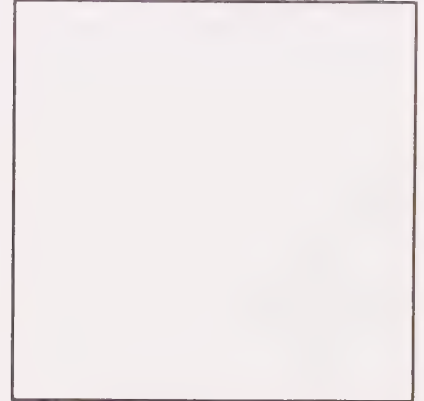


- | | |
|--------------------|------------------|
| Arroyo Verdugo | SELAC |
| CVAG | South Bay Cities |
| IVAG | VCOG |
| Los Angeles | Westside Cities |
| North LA County | WRCOG |
| Orange County | |
| SANBAG | |
| San Gabriel Valley | |



August 16, 1993

Chapter 1



STRATEGY

- Introduction and Purpose
- The Vision
- A Decision-Making Framework for Implementation
- Caveats

A. INTRODUCTION AND PURPOSE

This document contains Southern California's first ever comprehensive overview of the issues and opportunities facing the entire region. In a major break with past practice, it places locally defined goals on equal terms with mandates imposed by state and federal law. Thus, in addition to responding to mandates in transportation, air quality, housing, growth forecasts, water quality, and hazardous waste management, the plan places a comparable emphasis on issues that local initiative has determined to be of high priority. First and foremost, this includes the economy. The others are human resources, finance, open space, water resources, and energy. This Strategy has been designed to tie all of these issues together.

The purpose of this document is to create a framework for regional and local decision-making that will ensure such decision-making is consistent and supportive of regional as well as local goals. These are to be found in the following chapters, which are mostly summaries of more detailed documents. Thus, this document will serve as a guide and advisor to local officials seeking to determine the best for their communities by ensuring that their decisions are consonant with those of other communities as well as with broader regional trends and

actions. It is important to emphasize that the plan relies for its implementation on locally made decisions. While providing some guidance in this direction, its main function is to lay out the choices available to local governments and identifies the implications of those choices on both local and regional development. This framework is more fully defined below in Section B, The Vision, which sets out goals and themes for the planning process, leading to a new approach to decision-making.

A second major innovation of this plan is the development of a new set of relationships among the regional planning agencies, and their constituent local governments. This relationship has been built on subregional organizations¹, which are groups of cities together with unincorporated areas which have a common historical or geographical identity. Many of these subregions were newly formed for this purpose, to coordinate the expression of local needs and plans for inclusion in the planning process and to guarantee recognition of the unique needs and differences among each of these subregions.

B. THE VISION

There are several critically important trends which lie at the heart of the development of the great urban regions of the United States. For many reasons, including its age, location, climate, history, and geography, the Southern California metropolis and its environs constitute what may be described as the leading edge of urbanization in the late 20th century, and will continue to do so for some time to come. Among these trends are those of immigration/migration from throughout the world, accelerating patterns of economic change, social stresses, as well as environmental and resource challenges on an unprecedented scale.

Blessed with a climate that has not only attracted millions to the "Southern California life-style" but that also resulted in the "discovery" of smog, the region has been forced to deal earlier and faster than any others with the impacts of virtually unrestrained growth on an environment of limited resources. Most other metropolitan regions (both in the U.S. and abroad) have either suffered in silence (e.g. Eastern Europe) or had many of their environmental problems solved for them after the impact of economic changes (e.g. Pittsburgh). Southern California is unique in its attempt to do so while maintaining a growth economy², not to mention the sheer the scale of the region³. Although currently suffering from the economic effects of a massive scaling back of defense production, the overall impact is significantly less, proportionately, than was the closure of the steel mills in Pittsburgh in the 1960s, or the loss of the textile industry in New England in the 1950s. This is due to the variety and strength of the many industries that support the region.

Redirecting the economy to meet the needs of current and future residents is the paramount goal of the region. Although heavily dependent on outside resources and events, there is much the region can and should do on its own to take over management of its own affairs. The Economic component of the Plan provides a

¹ These subregions listed in the Introduction, pp. xix-xx.

² See SCAG, Regional Development Guide 1982, and the SCAG Growth Management Plan, 1989.

³ At over 15 million inhabitants, Southern California qualifies as a "megacity", along with cities such as Rio de Janeiro, Mexico City, Tokyo and Shanghai, to name just a few.

number of suggestions in this direction, and provides, it is hoped, the basis for a sustained dialogue leading to action to meet the economic challenges to the region.

In particular, this document focuses on three broad economic goals for the region, goals, which are used to also direct the goals and actions proposed for each of the other components of this plan. These are the creation of new wealth within the region from primary industries, developing import substitution in an open and free trading environment, and improving the standard of living for all.

1. GOALS FOR THE REGION

Previous plans for Southern California have been built around the assumption of virtually unending economic growth and prosperity. However, the recent downturn, especially its length and severity, has called this assumption into question. Local governments will have to come together to coordinate their actions in a concerted effort, and work directly with the private sector to create the kind of economic growth previously assumed. This document is intended to provide the focus for discussion and action to reinvigorate the economy.

But just focusing on the economy is not sufficient to meet the needs of the region. Social disparities and inequities are leading toward social disruption and dislocation, which if not addressed, could well lead toward a repeat and even spread of the civil unrest experienced during the spring of 1992. The goals set forth below are the first attempt to address the social and economic inequities and the geographical isolation of communities throughout the region. The SCAG Regional Council hopes these goals will serve as the basis for further discussions and the development of programs to redress the conditions that led to them.

To guide the decision-making process, this document proposes the adoption of regional goals. These will be goals for all of Southern California (*see* Figure 1-1). They represent the many needs and concerns that must be addressed simultaneously by the region to avoid creating further imbalances between the needs of the community at-large and the implementation of the various aspects of the plan. Local governments will need to build a consensus around these goals so that concerted action will be generated that will build the future envisioned for Southern California.

The Regional Comprehensive Plan (RCP) is a framework for decision-making for local governments, assisting them to work together through their subregional organizations, in order to meet federal and state mandates, consistent with our agreed upon regional goals. Each of the chapters in the document seeks to contribute to the achievement of the goals set out below (*see* Figure 1-2). Where possible, all three goals are addressed simultaneously, so that the enhancement of one goal is not achieved at the expense of others. Briefly, each of the chapters seeks to find ways to improve the economy in its area of concern while at the same time enhancing the environment and improving the equity of the distribution of benefits.

Figure 1-1.

GOALS OF THE REGIONAL COMPREHENSIVE PLAN

Standard of Living	Quality of Life	Equity
<ul style="list-style-type: none">● Increase real per capita income for all residents.● Increase proportionately the region's share of employment in sectors expected to grow rapidly over the next two decades.● Attain sustained economic growth in order to reach and maintain an average unemployment rate which is below the national rate.	<ul style="list-style-type: none">● Provide adequate and affordable housing to all on a timely and equitable basis.● Enhance and maintain air, land, open space, and water quality throughout the region.● Define a process which safely and efficiently handles hazardous waste.● Provide adequate transportation for all residents while meeting clean air goals.● Invest in the human capital of the region, particularly in health, education, job training, recreational and cultural activities.● Enhance personal safety and security throughout the region.● Maintain a sense of community and recognize the value of neighborhood and distinct localities in the region.	<ul style="list-style-type: none">● Provide fair and equitable access to employment and the multitude of other resources throughout the region.● Provide fair and equitable access to regional governance.● Recognize, encourage and support ethnic, racial, and cultural diversity.

Figure 1-2.

RCP STRATEGIC GOALS AND COMPONENT STRATEGIES

COMPONENT	GOAL		
	STANDARD OF LIVING	QUALITY OF LIFE	EQUITY
ECONOMY	<ul style="list-style-type: none"> Industrial clusters to expand and diversify economic base. Public-private cooperation to reduce business costs, improve competitiveness. 	<ul style="list-style-type: none"> New environmental and advanced transportation systems industries. 	<ul style="list-style-type: none"> Investment in communities in need.
GROWTH MANAGEMENT	<ul style="list-style-type: none"> Better design at the local level to reduce development costs. 	<ul style="list-style-type: none"> Integrated land-use and transportation planning. Local land-use practices that support regional environmental objectives. 	<ul style="list-style-type: none"> Balanced communities. New funding sources for development
MOBILITY	<ul style="list-style-type: none"> Continued investment in infrastructure. New transportation products and technologies. Conversion of military bases. Efficiencies in goods movement. 	<ul style="list-style-type: none"> New transportation products and technologies. Use-based pricing to reduce emissions, congestion. Community-based transit. User-based alternatives. 	<ul style="list-style-type: none"> More travel and transportation alternatives for all segments of society. Greater access to transportation in all areas.
AIR QUALITY	<ul style="list-style-type: none"> Regulatory streamlining. New technologies for emissions reductions. Improved balance between air quality and economic goals. 	<ul style="list-style-type: none"> Public-private partnerships to replace regulation, emphasize market initiative. 	<ul style="list-style-type: none"> Reduced exposure to pollution for all groups.

COMPONENT	GOAL		
	STANDARD OF LIVING	QUALITY OF LIFE	EQUITY
HOUSING	<ul style="list-style-type: none"> Reduced housing cost and increased affordability. 	<ul style="list-style-type: none"> Preservation of housing quality. 	<ul style="list-style-type: none"> Adequate supply for all groups. Access for all to housing market.
HUMAN RESOURCES	<ul style="list-style-type: none"> Consolidated service delivery to individuals and communities. 	<ul style="list-style-type: none"> Emphasis on training and development. 	<ul style="list-style-type: none"> Community-based development, especially for communities in need.
OPEN SPACE	<ul style="list-style-type: none"> Maintain and enhance resource production. Utilization of long-term economic criteria for land-use decisions. Multiple use of open space resources. 	<ul style="list-style-type: none"> Utilization of long-term economic criteria for land-use decisions. New partnerships for resource management. 	<ul style="list-style-type: none"> Improved accessibility. Public finance.
WATER SUPPLY	<ul style="list-style-type: none"> Use of reclamation, conservation, and water transfers for assured supply. More efficient water use. 	<ul style="list-style-type: none"> Use of reclamation, conservation, and water transfers for assured supply. More efficient water use. 	
WATER QUALITY	<ul style="list-style-type: none"> Market-based regulatory approach. Watershed-based management / community focus. 	<ul style="list-style-type: none"> Watershed-based management / community focus. 	
ENERGY	<ul style="list-style-type: none"> Public awareness campaigns for conservation. 	<ul style="list-style-type: none"> Supplemental building standards. Public awareness campaigns for conservation. 	
HAZARDOUS WASTE	<ul style="list-style-type: none"> Adequate capacity to assure risk reduction. 	<ul style="list-style-type: none"> Adequate capacity to assure risk reduction. Waste reduction and recycling. 	<ul style="list-style-type: none"> Fair-share siting.

COMPONENT	G O A L		
	STANDARD OF LIVING	QUALITY OF LIFE	EQUITY
SOLID WASTE	<ul style="list-style-type: none"> • Development of self-sustaining recycled materials markets. • Cost-efficient waste management. 	<ul style="list-style-type: none"> • Self-sustaining markets for recycled materials. • Waste prevention and recycling. • Improved process for siting facilities. 	
IMPLEMENTATION	<ul style="list-style-type: none"> • Streamlined permitting. • Conflict resolution. 	<ul style="list-style-type: none"> • Community involvement (bottom-up / interactive) 	<ul style="list-style-type: none"> • Improved access to decision-making process.

2. MEETING THE GOALS

Much of the planning in this region (as elsewhere) has been based on maximizing a narrow range of goals and objectives without reference to the broader impact of such actions on other aspects of life and the environment within the region. Transportation has been viewed as an end unto itself, planning for mobility (with some reference to air quality), but with little real evaluation of its broader impacts on such areas as the physical environment, housing, personal income, etc. Similarly, new development has been promoted to meet housing needs and the revenue requirements of local governments, but rarely are the impacts on other issues such as transportation, utility costs, social issues, or health care, fully evaluated. The result of this approach is frequently a duplication of services, and an over-emphasis on single issues to the detriment of others just as important (witness the huge investment in transportation through federal, state and local funding which occurs at the same time that local governments are forced to severely reduce expenditures in education, health, safety, etc.)

The RCP declares the region's recognition of the fact that single purpose planning distorts both the goals and the implementation of plans. Given the depth of the crisis presently facing the region, only a broadly based approach that supports all the functions of government and governance can be expected to succeed. Single-purpose governments (transportation commissions, air districts, water districts) will need to fit their plans into this more broadly conceived regional decision-making structure in order to achieve conformity and consistency, and therefore, the ability to implement their plans.

To put it another way, to meet the goals of this plan and the mandates on the region, new financial priorities will have to be established for all levels of government. Government bodies will need to be able to use their funds more flexibly to meet these priorities, rather than having their priorities fixed by funding availability. Not only does present practice mean that certain critical issues may go unaddressed for lengthy periods until new funding authority is gained, but the costs of dealing with the issue may be significantly higher when it finally is addressed, due to the impact of the delay itself. Finally, the limitations of categorical planning and spending also mean that reasonable alternatives are not addressed because they cross "turf" boundaries.

3. THEMES

There are three major themes that this plan seeks to promote in the vision for Southern California. These themes run throughout the plan as the thread that ties together the various strands of actions recommended in the many separate sections, and together form the core around which this strategy is built.

The first theme is **community**. Community is, at its most fundamental level, the expression of common concern, and acceptance of the responsibility for the shared aspects of life. It is most noticeable and effectively expressed at the local level, at the level of neighborhood, around a school, or church or other geographic/institutional organizing entity. For much of Southern California, the expression of community needs strengthening. Links between the people living together need to further develop so that they can make use of the strengths which come from acting around shared concerns. These shared concerns are frequently the same issues that have been developed as components of this plan—housing, transportation, air quality, or human development. The legal structure of our society may establish the specific boundaries within which these problems are managed, and the region itself is frequently the appropriate analytical framework for evaluating our progress. But it is through actions and organization at the community level that real

involvement and sound answers to our problems will need to be found. Few can relate to the entire region of Southern California. Instead we speak of belonging to a neighborhood or section of our city or county which often has no legal status, yet is more meaningful to us than is the legally defined entity in which it exists. There is no contradiction here. Our cities and the region are made up of thousands of these communities, and our political and economic development are expressions of the success or failure of our communities. The plan recognizes this fact, and suggests a number of tools that can be applied through local government to strengthen our communities, and conversely, ways in which communities can view the broader world to improve the functioning of local governments and the region as a whole.

The concept of community is developed in the plan in many different ways. It relates to the economic clusters which the region will foster. It relates to communities in need which the region must address. It relates to growth management policies which both seek to protect existing neighborhoods and concentrate the new development where possible around transportation nodes.

The second theme is that of **local, goal-oriented responsibility for planning and implementation**. Using the concept of community in its broadest sense, Southern California must develop a new approach to meet the goals set out in this plan and their relationship to the external dictates that are imposed on the region by federal and state requirements. Working through a new set of relationships between public agencies, the private sector and the public at large, this frame-work shows some of the steps that must be taken in order to assume responsibility for our own destiny. Toward this end, the plan proposes three goals: raising the standard of living, enhancing the quality of life, and fostering equity so that all can share in the opportunities offered. These are high ideals, and demand much of us, but ultimately, the responsibility falls on each of us individually to join in the community efforts which then comprise the region.

The plan is based on making use of the powers of existing local institutions, cities, counties, special districts, and associations of these units. But over over the past two or more decades, these have shown that they lack the powers and capacity to fully meet the demands of growth and change in a region of the size of Southern California. Problems have reached a scale that simply defies the powers of municipal or county level institutions, while regional structures are so distant from the individual that they lack the legitimacy needed in the eyes of most to serve as implementation vehicles. This plan proposes a shift in the pattern of institutional relationships. Instead of one which relies on hierarchical, top-down, mandated actions, a new, a more associative, consensually based emphasis on shared responsibilities is outlined. This shift in the locus of decision-making from "above" to within the community has already begun to occur, although the theory and practice are only imperfectly understood and developed. The region has already signalled its desire to pursue this direction, and must now work to develop the institutions, the arrangements among them, and the mechanisms for assuring their responsibility for powers now vested in the "top-down" hierarchical structure.

The third theme is the **ability of the region to organize itself** to handle the complex tasks ahead. The region will need to assemble the tools, skills, and organizations needed to effectively manage our destiny in an era of increasing globalization of the economy, communications, social ties and environmental issues. New relationships, both formal and informal, must be forged to strengthen the public and private sectors, and to create new partnerships between them. These would include the proposed industrial clusters which will require new forms of coordination between business, research, labor and government (Chapter 2, the Economy) and advanced transportation (Chapter 6, Mobility); the new initiatives proposed to manage pollution-generating activities (Chapter 5, Air Quality); the focus on people, their skills and needs, such as the proposal for "sister-community" relationships (Chapter 7, Human Resources and Services), the planning and financial partnerships between government, business and non-profit organizations needed to provide

adequate housing (Chapter 8, Housing), the approaches suggested for preservation and management of natural resource areas (Chapter 9, Open Space), and the new implementation approaches (Chapter 15, Plan Implementation).

4. RELATIONSHIPS AMONG RCP COMPONENTS

The goals shown in Figure 1-1 provide a way for the region to create relationships and resolve conflicts among the different components of the RCP. Previous planning for the region has been largely single-issue, and current mandates only require plans that address single topics. As yet, no requirement exists for a broad assessment of the region and its future. The SCAG Regional Council wishes to emphasize that from the perspective of local government, these individual functional plans are experienced simultaneously within a given geography. Thus, there are components for air, water and waste, but none for Southeast Los Angeles. The subregional planning process is intended resolve this problem over time. However, since the regions's plans continue to be prepared in response to federal and state mandates in functional components, some new process must be created to resolve conflicts and set priorities among them.

Southern California is already strongly aware of the relationship between transportation and air quality, which has been the subject of intensive planning and action since the mid-1970s, and even before. Less recognized are other relationships such as those between job location and housing; or the relationship between local control of development and the lack of affordable housing in the region; or the demands of the economy and the growing weaknesses of the educational and vocational systems.

In this first effort to create a new kind of planning process, the relationship among RCP components will be established by making sure that each of the functional components addresses a set of six over-arching strategic issues. The Strategic goals are intended to serve the region by guiding it toward consensus on important issues. Each of the individual components of this decision-making framework has been developed and evaluated, both at the local and at the regional level, and measured against these goals to assure compatibility. Evaluation against the goals is the assurance that each component will address the six shared issues listed in Figure 1-3.

The focus of this effort will initially be to ensure that the various components of the RCP are brought into concert, that gaps identified are filled, that conflicts in goals and plans are resolved, and that the jurisdictional problems that lead to duplication or performance gaps are remedied.

Figure 1-3.

CROSS-CUTTING ISSUES OF THE REGIONAL COMPREHENSIVE PLAN

ISSUE	RCP RESPONSE
1. What actions must Southern California take to maintain a competitive economic position in the State of California, the United States and indeed in the rest of the world?	Restoring the economy and its competitiveness depend on increasing locally created wealth, especially in primary industries (manufacturing) where California's skills and existing investment in infrastructure give it a competitive advantage. The region must also capitalize on its geographical advantages and opportunities.
2. What additions or improvements to the region's infrastructure will be needed to meet both environmental and economic goals?	Physical improvements proposed include transportation improvements for non-SOV (single occupant vehicle) use, including transit, expanded water and utility systems, facilities to improve the reuse and recycling of wastes; human infrastructure concentrates on retaining the existing base of high tech skills through creation of new industries, especially in transportation and communications, and in educating those with lesser skills or just entering the job market to skills appropriate to this focus.
3. What pattern of growth distribution will allow environmental, economic and social objectives to be met?	Increasing the infill of urbanization, by enhancing the opportunities to develop around and capitalize on the new transit systems now under construction will improve physical access, support the clustering of firms, and reduce pressures on environmental resources including air, water, land and raw materials, and reduce waste generation.
4. What development strategies will be needed to minimize environmental impacts?	Encouragement of development which is less auto dependent (near transit, transit accessible), and at greater densities than is current development at the urban fringes will conserve resources including land, water, air and other raw materials.
5. What new industries and technologies will be needed to enhance the ability to meet social, economic and environmental goals?	Industries that capitalize on the region's abilities in high-value-added, as well as the natural market for environmentally beneficial products and processes (alternative transportation, pollution control, etc.) and those which focus on existing successful industries, such as health, education, tourism and entertainment, and can provide significant numbers of jobs.
6. What resources, public and private, human and financial, will be required to sustain these goals?	New resources that must be found will go beyond the large financial resources that will be required. They include a new capacity for concerted and effective decision-making (institutional), enhanced education, a more equitable and economically rational revenue system, and public-private joint ventures.

5. POLICY CHOICES FOR THE REGION

Considering these themes leads us to pose the several policy issues that the region must resolve in the process of adopting this plan. Each of these policy issues is a central point of the plan, and clearly identifies the dilemmas faced by the region as it attempts to meet multiple goals. Frequently called "trade-offs", these are more correctly defined as complementarities, which must be treated simultaneously, a new and more difficult means of relating to problems when pressures are great and resources limited. The lesson of the RCP must be that planning does not involve "either-or" choices, but rather, must focus on a new approach which creates approaches resulting in "non-zero" sum situations, situations in which all parties benefit through building on the recognition of their mutual interdependence, common needs and shared participation in life in the Region.

Thus, for instance, the proposal for enhanced local based transit is designed not only to improve transportation, but to create a new transportation equipment industrial cluster which serves the needs of export, helps meet clean air goals and provides needed jobs both in manufacturing and in operations.

These dilemmas, or policy choices, facing the region are highlighted the box on page 1-13.

POLICY DILEMMAS FACING THE SCAG REGION

- Can this region find a solution which simultaneously meets both the requirements for cleaner air and provides adequate mobility within the constraints of funding? Even though the region will be expending billions of dollars for the mobility system, there are severe financial and environmental constraints that must be addressed in this plan and by the region. Not only must the plan live within reasonably available funds, which this draft plan does not, the region must also be within its air emissions budgets in each of the air basins. These emissions budgets will be ultimately contained in the federally approved air plans. However, comparing the estimates found in the mobility chapter for automobile emissions with those in the 1989 and 1991 Air Quality Management Plans for the South Coast Air Basin and for Ventura County shows that there is a substantial gap between the emissions reductions in this plan and those required.
- How will the region find the land needed for construction to accommodate the millions of new residents expected at affordable prices given the shrinking availability of open land for new development? Environmental considerations place limits on the availability of new land for development, and practical considerations demonstrate that present development patterns fail to meet the demand. What steps must the region take to ensure that housing can be produced at acceptable prices while still meeting environmental, transportation and other goals?
- In restructuring the governance functions, the region must develop mechanisms which at the same time ensure timely responses to demand and economic conditions while not weakening the protections needed for the public health and safety. What approaches can be taken to streamline the processes of review and permitting of development to ensure that both demands are met reasonably?
- How will the region balance resource needs including water, land, air, etc., with the demands of growth and the economy? The 1987-92 draught tested the limits of availability for water, and demonstrated the need to plan ahead. The region must rethink its resource consumption practices, to ensure that the burdens placed by growth and economic changes do not excessively burden available resources, and that we can ensure sustained availability for future generations as well.
- What programs and approaches to human development will be needed to meet the changing demands of the economy? Will Southern California be able to continue supplying the human capacities to ensure that the economy meets the goals set for the region, skills that are both of the highest level and widely distributed in the population?
- Will Southern California be able to take care of its communities in need? Social and economic needs are widely distributed, but frequently focused in specific communities, and within those communities, to individuals and families whose independence is compromised by a cluster of problems. Returning these people to full participation in the community will require focused efforts, and the region must decide how it will meet this need, which transcends individual local jurisdictions.
- How will the region plan for the allocation of population, employment and new development to ensure that the distribution is supportive of the goals of the plan and further, that the growth enhances the capacities of local governments to supply needed services for all residents?

C. A DECISION-MAKING FRAMEWORK FOR IMPLEMENTATION

As indicated above, this document is primarily a guide toward decision-making for local governments. But it also establishes a new approach to this decision-making which suggests that old approaches must be revised and new relationships established between the various centers of decision-making in order that local governments, the private sector and the public at large be supportive of these decisions.

1. OPPORTUNITIES FOR PUBLIC-PRIVATE PARTNERSHIP

A primary theme of the plan is the development of an ongoing relationship between the public and private sectors based on the recognition of their mutual interdependence. The private sector cannot resolve these economic issues alone, nor can the public. Yet in the past, all too often they have looked to each other to "bail out" the region by unilateral actions designed to favor a particular approach or set of interests. Even the recent economic prosperity based on defense production was in part the result of a carefully developed program of public investments guided toward this region under two California presidents, Nixon and Reagan. The change of administration following President Reagan heralded, even before the end of the Cold War, a shift in the economic favoritism away from California and toward other areas which had been less successful in the past, especially Texas, home to President Bush, and Washington state, home to U.S. House of Representatives Speaker Thomas Foley.

Southern California has begun to face this reality, and this plan is the first step in organizing a response. Much remains to be done, many issues have yet to be fully addressed, but the strategy includes:

- Conversion of military high-tech production into new products in transportation, communications, environmental management and resource conservation.
- Focused development based on a cooperative relationship between local governments and the private sector to facilitate the creation of industry "clusters", or groups firms in related industries which support each other (*see* Chapter 2).
- An increase in the support given to the foundations of economic growth; education, training and job development; and continued improvements in the quality of life.

2. WORKING THROUGH SUBREGIONS

The history of Southern California has been one of largely uninhibited freedom to develop and urbanize, with only limited interference from concerns for the environment, neighbors or economic consequences beyond the immediate benefits to the locality gaining the development. The region has now come to the recognition that this state of affairs cannot continue now that urbanization is continuous for nearly 6,000 square-miles, and the problems of pollution, waste, crime, traffic, etc., travel as freely across city and county boundaries as do the winds and the rain. Yet, at the same time, local governments also strongly support the need for local decision-making, keeping the locus of power and responsibility close to the average citizen, where true dialogue can be encouraged, and a shared responsibility fostered in the best traditions of American democracy.

To link the concerns of 15 or 20 million residents into effective decision-making processes, Southern California has embarked on a unique experiment in subregional cooperation, sometimes referred to as "bottom-up" planning, wherein the primary source of ideas and implementation authority lie at the local level, while the collective, acting through regional agencies, examines the consequences of local actions to ensure their consistency and support for regional goals and mandates.

SCAG has recognized the role of 13 subregions, each with its own unique history, development, economy, and aspirations, and through them has proceeded to put together this document. Each has been called on to formulate a subregional approach to such issues as air quality, transportation, housing, economic growth and others, and to do so within the broad goals of the region, which are set forth in this chapter.

This coordinated, decentralized planning and implementation is a significant change. In the past, nearly 185 separate cities and counties competed with little restraint for economic advantage over their neighbors, little caring if the long-term impacts on the region justified the temporary gains. This document sets forth the first steps toward creating a new relationship that balances competitiveness with cooperation. New firms and growth are emphasized, rather than redistributing existing jobs and benefits within the existing urban fabric. The plan sets forth the first steps the region must take to redress this situation. This will be further developed in the Financial component, to be released later as Chapter 10.

It is increasingly being recognized that only through local agreement on the goals and actions can plans and programs be implemented effectively. Impositions from outside are usually impractical, forced, and lack the support needed to meet their targets and goals. Numerous examples exist, the best known of which relates to air quality. Others include housing allocations and environmental requirements for habitat protection. While the region has had some successes, for instance in the creation of the growing network of High-Occupancy Vehicle (HOV) lanes, other initiatives have not been well received. The plan addresses these issues and develops an alternative approach to meeting these worthwhile goals by giving local governments and agencies the primary responsibility for establishing the programs and actions within agreed guidelines.

The region is also working to create an alternative approach to replace mandatory adherence to requirements imposed from above. The new approach would rely on local responsibility, acting through self-regulating and self-correcting mechanisms that reward appropriate actions or behavior, and penalize those that tend to harm the region's interests. This Strategy is the first statement of this approach applied to the full range of urban planning and development activities.

3. CONSENSUS BUILDING AND DISPUTE RESOLUTION

Among the many results of the past approaches to governance has been the proclivity to resort to legal remedy when neighboring jurisdictions undertook projects that benefitted themselves while exposing neighbors to major impacts from traffic, water and air pollution, etc. Long recognized as a problem, but never directly addressed before, this document, when implemented, will establish a program of alternative dispute resolution. Based on voluntary resort to mediation and on training public officials in consensus building and dispute avoidance, it seeks to create a more cooperative approach to planning and project implementation. It relies on the concept that development benefits should be shared in some measure among those who also suffer the impacts. New approaches to resolving problems resulting from continued development and change in the region are developed and made available to all units of government, local, county, and state, as well as

to the regional and subregional agencies responsible for reviewing and overseeing the broader impacts of local actions.

The process by which the RCP is being developed represents a major departure in planning for Southern California in a number of ways. Unlike previous plans, the RCP is not a static document: through amendment and regular updating, it will evolve over time. Second, and, perhaps, more important, the locus of decision-making for the region has changed. No longer will the regional body attempt to impose plans on the region: rather, through a dynamic, "bottom-up" interactive process, plans are to be developed based on local input with regional coordination to enable adherence to standards set in federal and state law, or by the region. Because of this subregional process, active participation in regional planning has increased, as has interaction among local governments.

Plan development is not the only arena in which local and subregional decisions are made. Implementation will, in many ways, involve even tougher decisions. Urban form issues, transportation projects, air quality measures, facility siting, uses of open space, growth management, and housing allocation, all raise the specter of potential conflicts.

Traditionally, disputes have been dealt with in a number of ways: the issue may be put to a vote and there are winners and losers; the issue may be avoided by not deciding; a decision can be imposed (by a higher level of government) without any buy-in by those impacted; or, failing any other resolution, the parties litigate. There appears to be wide-spread agreement that there must be a better, less-costly and less time-consuming way to resolve differences.

During the past decade, many public bodies have turned to mediation or alternative dispute resolution as the "better way". The goal is to arrive at decisions based on mutual agreement among parties. The process assumes parties will be supportive of the decisions reached. Key to this process is consensus building, which does not happen automatically. It often requires the use of a highly skilled third party to create an atmosphere in which alternative approaches may be reviewed and tested, which in turn requires skill to bring the parties together in the correct frame of mind.

Alternative dispute resolution services are now being created throughout the United States. Several states have established mediation centers for public policy issues where both state and local agencies can obtain assistance and support in bringing public disputes to resolution through mediation. Cities and non-profit agencies provide services for almost every kind of dispute, including, landlord-tenant, marital, zoning and building code, and dog-barking. Both the federal government⁴ and the state of California⁵ have recognized the value of these processes.

These new approaches to resolving conflicts may take many forms. One approach might involve conducting meetings in such a manner as to assure that there is closure on issues and that closure is reached through consensus. Another approach, used in developing regulations, brings all the affected parties to the table. At

⁴ See the recently adopted "Administrative Dispute Resolution Act." (5 USC § 571 et seq.)

⁵ For example, state Senator Bergeson's proposed legislation (SB 517) provides for voluntary mediation of land use disputes. The potential litigants have the option of choosing a mediation specialist, a council of governments, or a subregional or county-wide council of governments to mediate the issues.

the federal level this has is called "negotiated rule making"⁶ This is appropriate for issues ranging from the numbers used in modeling to siting of hazardous waste facilities or base closures. Using these techniques, they often can be resolved in such a way that everyone is willing to support the agreement.

4. SELF-REGULATING MECHANISMS VS. REGULATION

Finally, and perhaps ultimately among the most important, is the decision to shift wherever possible from the "command and control" to a more self-regulating approach to achieving legally required changes in public behavior. This approach would apply to pollution control and abatement, to traffic management, and potentially a wide range of other activities, where the cumulative impacts of human activities are unacceptable, but the means to reduce them cannot be effectively managed through individual actions. Such self regulating mechanism often come under the heading of "market based solutions" - increasing the cost of an activity to bring the cost more directly in line with the full cost of its impacts, both private and public, and thereby regulating its impacts. While frequently difficult to achieve, and potentially subject to abuses and equity impacts (differential impacts on those least able to afford the added cost), well designed programs with adequate safeguards are believed to offer a far more reasonable approach to meeting requirements than does regulation which relies on often grudging compliance and an enforcement mechanism which is frequently costly, unsure and arbitrary in its implementation.

This approach should help to create what are called "positive sum" results, in which all parties can benefit, rather than the more common "zero-sum" approach in which one party's gain comes largely at the expense of others. Through a measure of regional cooperation, problems which have appeared previously beyond the capacity of local governments to resolve could become foundations for cooperative action. Many of the problems facing the region are a result of an inability to reach beyond the "zero-sum" paradigm in finding cooperative approaches. The fear that the non-participant(s) in such an action would gain some specific advantage over those who willingly take difficult actions has largely prevented such actions from occurring. Examples include proposals for a regional parking strategy, competitive land use practices, economic development, housing policies, waste treatment and others.

5. MODES OF PLANNING AND IMPLEMENTATION.

As noted above, past efforts to impose solutions from above have run into increasing resistance at the local level and from the private sector. One of the aims of this Strategy is to chart a course, which, over time, can improve compliance with regional goals by increasing the "buy-in" by local governments. This must be done through ever growing levels of local participation in both decision-making and plan implementation. It implies a simultaneous reduction in the centralized, coercive nature of the current process. It is hoped that this document will ultimately lead to the creation of region-wide self-regulating mechanisms. For some purposes these could be contracts among subregions or among regional agencies and subregions. For other purposes, in the long-run, this might be done by establishing pricing mechanism so as to reward acceptable actions and discourage or penalize actions that impose costs on the region.

This approach is shown in Figure 1-4, which describes a continuum of modes of governance and planning. This continuum ranges from the Current Practice, (based on regulation largely established at the federal and

⁶ Recognizing the benefits of this approach, congress enacted the "Negotiated Rule making Act of 1990." (5 USC § 561 et seq.)

state levels and enforced by regional functional agencies), to Managed Interaction, Contract Interaction and a Simulated Market. Managed Interaction is a decision-making style in which, while regional agencies, such as SCAG, still bear most of the responsibility for setting the directions of planning, more and more policies are set by subregional input into the process. This is the mode toward where the region is currently moving. The SCAG Regional Council believes managed interaction is a way station on the path to what is here called Contract Interaction, in which goals will be achieved through contractual relationships. Some may be contracts within subregions or among them. Regional agencies, both general purpose and functional will be responsible for making trade-offs and will assist in dispute resolution. But there will be flexibility in both the goals optimized at the subregional level and in the methods for reaching them. Figure 1-2 sets out the hope that ultimately as much as possible of our regional decision making will take place in what is here called a Simulated Market. The idea of the Simulated Market is that, at least for some functions, it can capture the goals for particular activities through a pricing system.

It should be remembered that these are idealized types, and that within any situation, aspects of more than one may be occurring. Thus at present some subregions may be ready to do cross-functional planning by contract with SCAG while others are not. Similarly, strategies for dealing with air quality may at a given point include regulations as well as markets, while other aspects of achieving improved air quality may be handled through contract or managed interaction. While it may not be possible to achieve uniform progress away from the current momentum and toward contract interaction and reliance on markets, the intent of this document is to begin a process of pushing decision making in those directions.

For this decision-making framework, the range of types of interaction shown in Figure 1-2 is intended to show alternative approaches that may be or are currently being used to deal with specific issues. In seeking to create a mechanism for achieving a specific objective tied to the regional goals, a choice needs to be made with regard to the most appropriate mode for decision making and for implementation. The "current momentum" is implied in most current public policy, and relies on the top down regulatory mode. Southern California must recognize that selection of an alternative strategy may well involve some delay while the legal and practical basis for the alternative are designed, tested and approved by the regulatory or legislative bodies who currently have responsibility. The SCAG Regional Council hopes that it can make clear that its goal is to move away from the "current practice" in decision making. But, until approval to do so can be obtained, and in order to assure the continued flow of resources from other levels of government, the region must continue under its present regulatory obligations, which impose substantial penalties for non-compliance.

Thus, the effort to change the style of decision making in the region, like the effort to change the types of goals provided by federal and state mandates, must be two-tracked. One effort at this point must be to effectively meet the present regulatory requirements (and avoid the imposition of sanctions as much as to meet the intent of the regulation). At the same time, the Regional Council is committed to working toward changing the rules to permit the new, regionally developed approach, which rests on the transfer of primary responsibility to the subregions and local governments.

Figure 1-4.

THE CONTINUUM OF POLICY AND IMPLEMENTATION MODES

Public		Private	
Current Momentum	Managed Interaction	Contract Interaction	Simulated Market
Heavy emphasis on Federal and State imposed mandates that regional agencies are responsible for enforcing. Planning is the basis for enlightened regulation.	Regional agencies promote development of Subregional organizations, which provide input into the regional planning process. Subregional involvement is largely technical.	Private businesses, cities and individuals contract with Subregions. Subregions plan and bargain. Regional agencies articulate trade-offs among/between subregions. Subregional involvement is overtly technical and political. Contracts replace regulation among/between agencies/jurisdictions.	Emphasis is on individual action. Little government intervention except with respect to externalities (including equity). No regulation is needed. Decisions are made via pricing systems, not contracts.

The RCP represents the work of many agencies and organizations. In addition to SCAG, cities and counties, county transportation commissions, air quality management districts, water quality districts, water supply districts, state and federal agencies have all contributed plans for inclusion in this overview.

SCAG's authorities are specifically delineated in law, and are limited to planning and plan review through the intergovernmental review process. SCAG has no implementation powers: these rest with local government or with the single purpose agencies enumerated above. This decision-making framework seeks implementation through two distinct avenues. First, all regional plans must be consistent in their basic assumptions and projections. This is required in state planning law, and it means that local plans must be consistent with all regional plans. To accomplish this, local plans, in the process of being updated, must incorporate these regional assumptions. Once consistent, it is SCAG's intention to allow self certification of plans and projects by local governments, since SCAG will no longer need to review them for consistency.

Second, by bringing state and regional plans from other agencies into consistent assumptions, and by incorporating their plans into the RCP, these agencies will be working together toward the accomplishment of these same goals, and therefore acting to implement the RCP through implementation of their own plans, now modified to achieve the needed consistency. A major by-product of this approach is intended to be a reduction in the number and reviews, and their cost in time and money on projects at all levels. One of the goals of this document is to simplify the process of government to improve the delivery of public services in all sectors, and this should be an important contribution in this direction.⁶

6. MONITORING CHANGES

A final aspect of this document, one which until now has been too often ignored, is that of monitoring changes in the progress toward achievement of regional goals on a continuing basis. This is needed to ensure that plans and implementing programs once agreed to are in fact yielding the results intended. This cycle of regional planning will hopefully culminate in the first use of a new tool to which all subregions and all local governments will have access to measure this progress or the lack thereof. In making decisions about new growth, or changes in the infrastructure of their jurisdictions, local governments and subregional organizations will be better able to relate changes at a local level with those occurring within their subregion and the region as a whole. They will also be able to communicate to other subregions that they are making changes and receive timely comment on how their decisions impact their neighbors.

The idea is to develop an interactive data base that, for the first time, will link all cities with their subregional organizations, and tie the subregions to SCAG. The tool is intended to provide a current, convenient and common base for communicating plans and projects, for examining their impacts outside a given jurisdiction and on other functional areas (e.g. transportation improvements on air quality) and ultimately for the assessment of their impacts on other localities and other functions as time goes on.

This monitoring system, more fully described in Chapter 15, creates no new mandates or powers for SCAG or the subregions. Rather, it offers local decision-makers greater ability to use existing tools and authority effectively, thereby adding to their assurance that imposition of additional mandates can be avoided.

The proposed decision-making continuum described in this chapter is based on a new vision of local governance, one in which local governments become more willing to assume the responsibility for achieving regional goals because they have developed those goals and the processes developed for implementing them.

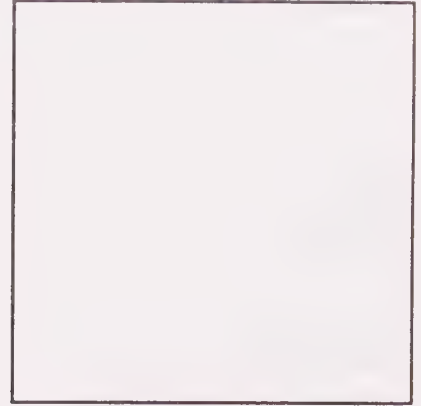
Simultaneously this vision involves embracing the recognition that to be effective, government at all levels must provide ready and meaningful access for all to the material, social, and political benefits conferred by the locality and also by the region.

D. CAVEATS

This document represents the current state of thinking on each of the subjects covered, but does not reflect any decision on how to structure the RCP in order to maximize the expression of the relationships between the components. SCAG's Standing Committee on Planning will be reviewing this structure to determine how the document should finally be organized: whether as discrete elements, as broad themes, or as a unified strategy for the region.

Further, it must be clearly stated at the outset that this is a draft plan: several important policy decisions remain to be taken before the final document can be prepared. The most important of these concern the distribution pattern of the anticipated population growth and the final shape of the mobility program to be recommended. In particular, there is a continuing discussion between the older, more urbanized areas of the region and the newer, rapidly urbanizing areas over the relative rates of growth for both employment and population, and the resulting stress these patterns might place on facilities and on local government finances.

Chapter 2



THE ECONOMY

- Regional Economic Goals
- Mapping the Region's Economy
- Long-Term Economic Forecast for the SCAG Region
- Strategies for Economic Prosperity and Equity

A. INTRODUCTION

The SCAG region is a formidable economic entity. With an estimated gross regional product of more than \$360 billion, the SCAG region's economy is the 12th largest in the world—between those of Spain and India. During the two decades following 1970, the region's population increased by 4.6 million, an amount equivalent to adding a state the size of Minnesota to SCAG's six counties. Between 1972 and 1990 a remarkable 2.8 million jobs were created in the region, an average annual increase of 3.6 percent. And personal income regionwide rose from just over \$4,800 per capita in 1970 to \$20,600 twenty years later. This is an impressive economic record, certainly among the best, in terms of the sheer magnitude of change, of any region in the world.

Few countries with an economy as large as that of Southern California operate without some form of economic game plan. Yet this chapter on The Economy is the first of its kind in any SCAG plan. The rationale for it, at this juncture in Southern California's economic history, should be clear to anyone living in the SCAG region today. The regional economy is mired in the most serious recession since the 1930s and there is widespread concern about the future of its economic base.

Once before, in the early 1970s, the SCAG economy faced the need to find new areas of economic growth as deep post-Vietnam defense spending cuts hit the nation and region. Once before, the need to begin economic transition emerged at the same time that a national recession pushed unemployment rates more than 10 percent.

During the 1970s and 1980s the regional economy outpaced the nation in job growth although defense jobs never regained 1967 levels and fell sharply as a share of the region's economic base. The region prospered by developing new areas of economic strength and competitiveness. The region's firms and workers saw where new opportunities were emerging and responded successfully.

The length and depth of the current recession has caused people to ask whether the region's economy is facing more than just another period of transition and change. There is a lack of confidence about whether the region's firms and workers can, once again, identify and take advantage of new opportunities.

The Southern California Association of Governments' Regional Comprehensive Plan (RCP) examines the future of the region during the next 20 years. Previous regional plans have focused principally on transportation, housing, growth management, and air quality issues, without specifying their impacts on the economy. This plan, by contrast, starts with the premise that a healthy regional economy is a prerequisite for successful implementation of policies in these other areas.

Additionally, in the past, components of the regional plans were developed in a fairly traditional public policy process within SCAG and its family of local government constituencies. This chapter on *The Economy* was developed using a completely different approach—with early and broad involvement of business and community groups.

This process began in June 1992 with two days of economic transition strategies workshops in which business, government, labor, academic, and community group leaders collectively analyzed the causes of the severe recession and the economic transitions facing the region and explored regional strategies for economic recovery. During the period since those intensive working sessions, a volunteer consortium of business and community associations coordinated by the Los Angeles Area Chamber of Commerce and the 2000 Regional Partnership has been meeting to refine the strategy. *The Economy* is a product of these efforts together with those of SCAG.

This chapter is an assessment of the SCAG region economy. What are its strengths and weaknesses? Where do the future opportunities lie? What needs to be done to enhance the region's competitiveness in the national and world economy? Chapter 2 is divided into five sections:

A. Introduction

B. Regional Economic Goals

1. Prosperity: Real Income Growth
2. Equity: Ensuring Economic Gains Are Broadly Shared

C. Mapping the Region's Economy

1. The Economic Base
2. The Impact of Recession

- 3. Economic Transitions
- 4. The Issue of Economic Competitiveness

D. Long-Term Economic Forecast for the SCAG Region

E. Strategies for Economic Prosperity and Equity

- 1. Introduction: The Need for a Regional Focus
- 2. Regional Economic Strategies Consortium (RESC)
- 3. Strategies to Expand and Diversify the Region's Economic Base
- 4. Strategies to Promote Regional Competitiveness
- 5. Strategies for Investment in "Communities-In-Need"

B. REGIONAL ECONOMIC GOALS

In view of the region's economic history and its current circumstances, what are the appropriate goals at which policy makers should be aiming? A multitude of economic targets can be envisioned, but most, on closer inspection, will turn out to be intermediate in nature. The fundamental economic goal of regional planning must be to improve the welfare or standard of living of those who work and reside there¹. Unfortunately, standard of living is a subjective concept; planning requires objective criteria. The statistical measure that comes closest is *real personal income*². Aims such as increasing the number of jobs or maintaining the competitiveness of regional industries—which are discussed later in this chapter—are really intermediate objectives to be met in order to grow personal incomes in the region. Hand in hand with income growth must be the broad goal of equity: ensuring that everyone participates in the growth of prosperity.

1. PROSPERITY: REAL INCOME GROWTH

Real personal income (personal income adjusted for inflation) is the broadest single statistical measure of well-being or standard of living. As such, *growth* of real income is more important as a regional economic target than growth of jobs alone. To provide a meaningful measure of progress in achieving prosperity, we need a unit by which the dollar value of total personal income in the region can be divided. Here there are several choices: standard measures include real personal income *per household*, *per family*, *per capita*, and *per worker*.

For purposes of a regional economic strategy, neither income per family nor income per household seem appropriate. Household formation and family size are both influenced by many variables that are not directly related to the state of the regional economy: culture, religion, and ethnicity to name a few.

Real personal income per capita is probably the least biased of measures, but it suffers from the drawback that rapid growth in the population (including that caused by immigration) at certain times may cause distortions. Expressing the total on a per-employee basis would not take account of the effect of changes in unemployment. However, if we were to use the number of members of the labor force (both employed and unemployed) as the denominator, this distortion would be eliminated.

Figure 2-1 shows the history of real income on both a per capita basis and a per labor force member basis in the region since 1980. The last major recession (1981-82) shows up clearly in the form of declines in real income, as does the current slump. What is particularly troubling in connection with the current downturn is that it was coupled with a noticeable diminution in the rate of growth of real income on a per capita basis since about 1984. Put another way, per capita real income growth had already been slowing for several years when this recession hit.

Income targets for 2010 should be phrased in terms of growth rates of real income between 1990 and 2010, with both a minimum and a moderate goal. For example, expressed in per capita terms, the minimum acceptable growth rate could be zero; i.e., *Minimum* = no further decline. This would mean that personal income in the region would have to grow each year at least as fast as the rate of inflation plus the rate of

¹ Subregion input: San Gabriel Valley Association of Cities.

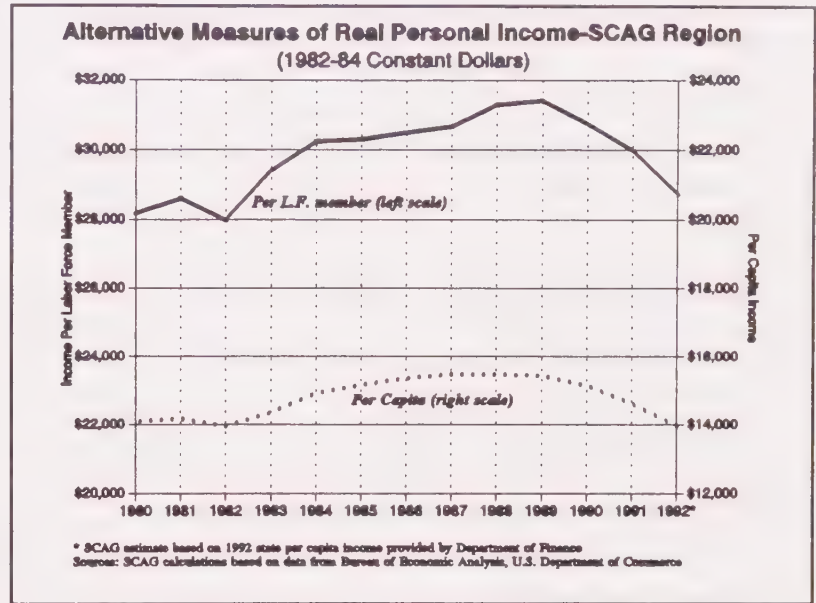
² Subregion input: Arroyo Verdugo Subregion.

population growth. In 1992, for example, personal income would have had to grow by roughly 5 percent to meet this target.

The "moderate" income growth target could be to match the performance of the last inter-censal period, that is, *Moderate* = per capita real income growth per annum at its average rate during the 1980s. This would mean, for the region as a whole, an annual compound increase on the order of 0.7 percent.

Enhancing the standard of living of the region's inhabitants is an appropriate economic goal. But it does not address many of the concerns reflected in the *quality of life* goal contained in the *Strategy* chapter (Chapter 1) of this Plan. These are addressed directly in other chapters of the RCP under the headings mobility, air quality, housing, human resources and services, water quality, etc. However, the strategies recommended in this chapter seek to ensure that cost-effective means are utilized to achieve the region's quality of life goal.³

Figure 2-1



2. EQUITY: ENSURING ECONOMIC GAINS ARE BROADLY SHARED

It is not enough that the region experience growth in average real income. The second goal of this chapter of the RCP is that the region's gains in economic prosperity are shared broadly by residents throughout the region⁴. Both this goal and the previous one are "grass roots" in the sense that they were agreed upon by business, government, labor, academic and community group representatives in SCAG's work over the past two years on the Economic Component.

Southern California is probably the most diverse region of its size in the world. The region's population includes residents of very different cultural backgrounds, educational attainment, work experience, skills and income. Our diversity is so great that regional prosperity cannot be achieved unless all major groups participate.

Note that a goal of broadly shared prosperity does not imply a strategy of redistributing today's income. Strategies to ensure that future economic gains are broadly distributed are based, by contrast, on expanding opportunity and the commitment of business and government leaders to recognize that individuals and

³ For an extended discussion of the competitive aspects of quality of life, please see sections on "The Issue of Economic Competitiveness" and "Public-Private Cooperation to Aid Business Competitiveness" later in this chapter. Subregion input: Los Angeles City, Western Riverside Council of Governments.

⁴ Subregion input: Los Angeles City.

communities left behind today must be made full partners in the growth of tomorrow's economy. A regional economic strategy for so-called communities-in-need is discussed in Section D.

Finally, with respect to those concerns of quality-of-life goal listed in the Strategy chapter, they will be addressed in other chapters, such as Regional Mobility, Air Quality, Human Resources and Services, Water Quality, etc. However, the strategies recommended in this chapter require that this region exercise a cost-effective approach to achieve our quality of life goal.⁵

N.B. The recommendations contained in this chapter to fulfill the stated goals and objectives do not create new legal mandates for local governments or other regional organizations.

⁵ For further and extended discussion of a competitive quality of life, please see sections on *"The Issue of Economic Competitiveness"* and *"Public-Private Cooperation to Aid Business Competitiveness."*, below. Subregion input: Los Angeles City, West Riverside Council of Governments.

C. MAPPING THE REGION'S ECONOMY

Three main factors account for Southern California's economic predicament in the early 1990s: (1) the severe economic recession which began in mid-1990, (2) a series of economic transitions or structural changes—including defense spending cuts—that were already underway when the recession struck, and (3) deterioration in the region's business climate and competitiveness.

We return to these factors below, but before we can appreciate their impact we need to examine the nature of the regional economy. How does it work? What are the major sectors? What are its strengths and weaknesses, its opportunities and challenges? How did the region fare in the wake of the defense cuts and recession that occurred 20 years ago?

A regional economic strategy must be based on more than responding to today's headlines. What strategies are needed for the next 20 years? Given the opportunities and challenges, what are the likely dimensions of growth in the region between now and 2010—how many new jobs and people are likely?

Section 1, below, describes the SCAG region economic base at the beginning of the period covered by the Regional Comprehensive Plan.

1. THE ECONOMIC BASE

The rate of job growth in the SCAG economy is primarily determined by growth in the region's economic base. Basic industries—the industries included in the region's economic base—make a substantial share of their sales to customers outside of the region.⁶ That is, they *export* goods and services to customers elsewhere in California, throughout the nation, and throughout the world. Selling outside the boundaries of the region is what brings *new income* in.

To be sure we are clear on terms, note that the word "industry" is used here in a generic sense, to denote any type of productive activity. That is, "services" provided by a business qualify as industries under this definition. Examples would be the banking industry, health care industry, etc. However, not all services industries are "basic" in the sense of *exportable* (able to be sold outside the region). Finally, note that exportable does not necessarily mean *consumed* outside the region. Tourists consume our goods and services within the region, but the tourism industry is nevertheless "basic" because the money tourists spend comes from outside the area. A list of basic and non-basic industries is contained in the Technical Appendix to this chapter.

Aircraft, apparel, motion pictures, computer services, plastics, and amusements are all key industries in the region's economic base. Other parts of the economic base include the rest of manufacturing, air transportation, parts of the wholesale trade, hotel, and business services industries, as well as part of the services provided by the region's hospitals and universities, which serve people from outside the region.

Manufacturing activities have been and will continue to be an important part of the SCAG region economic base. Manufacturing activities create both direct production jobs and jobs in many related industries.

⁶ Basic industries are defined as those whose output can be exported as well as sold in the region. So called "non-basic" industries (mainly services), by contrast, are sold only in the home market. Construction and education are examples of the latter.

However, manufacturing jobs have been a steadily declining share of the national economic base as well as that of the region. For example, between 1979 and 1993 the U.S. economy added 20 million jobs while the number of manufacturing jobs fell by more than 3 million. Even through the current national job recovery, manufacturing jobs have declined steadily.

Manufacturing is very important to the region's prosperity, but it is not the only base sector with future opportunities. Non-manufacturing activities, like tourism, entertainment, and professional services, have become a significant component of the SCAG region economic base. As shown below, most of the job growth in the region's economic base has and will continue to occur outside of manufacturing.

To reiterate, the SCAG region's *economic base* is the appropriate focus for developing economic strategies.

- *Exportable goods and services are subject to intense competition. A regional competitiveness strategy means being competitive in basic industries.* Growth in jobs and sales in the region depends on how well the region's firms and workers compete—often with locations throughout the world. People involved in basic industries—whether in manufacturing apparel, filming a motion picture, or deciding where to vacation—have a choice.
- *Growth in the economic base will determine the opportunities for job growth and increases in income in the rest of the economy.* Prospects for employment growth in supporting activities like retail trade, medical services, construction, and local education depend on employment expansion in basic industries. Regions with the fastest growing economic bases have the highest rates of overall employment growth.

a. The Region's Changing Economic Base

The number of jobs in the SCAG region's economic base expanded by almost 50 percent between 1972 and 1992. Most of the new basic jobs were created in the region's service sectors—not in the production of goods.

As shown in Table 2-1, the two fastest-growing sectors were professional services and tourism and entertainment, with job gains of more than 100 percent. Employment in basic transportation and wholesale trade activities increased by almost 60 percent. All of these sectors benefitted from increases in foreign as well as domestic purchases.

Table 2-1
SCAG Region Economic Base*
Thousands of Jobs

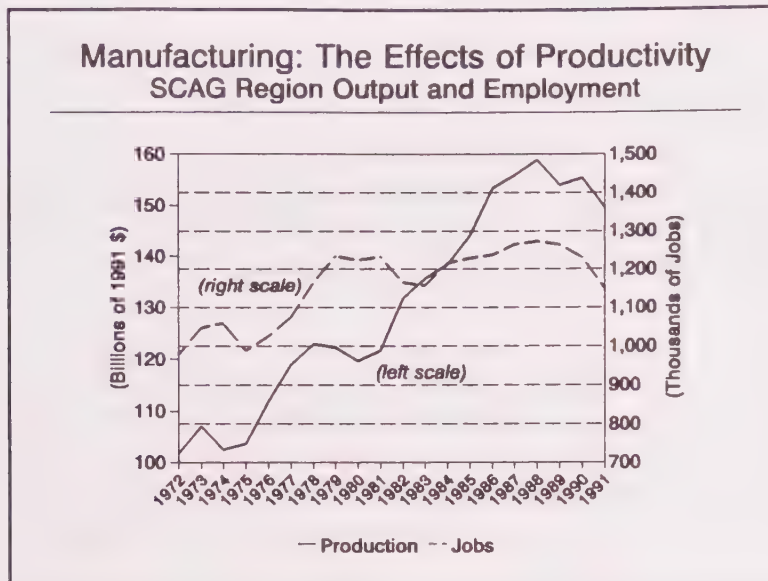
	1972	1992	Percent Change 1972-1992
Professional Services	328.5	798.8	143.2%
Diversified Manufacturing	673.9	721.8	7.1%
Transportation & Wholesale Trade	329.5	526.5	59.8%
Tourism & Entertainment	107.0	248.3	132.1%
Defense Related	250.1	236.2	-5.6%
Resource Based	78.6	116.8	48.6%
High Technology Manufacturing	80.9	111.9	38.3%
Total	1,848.3	2,760.3	49.3%

*The industries (SIC Codes) contained in each of the 7 groups in the table will be found in the Technical Appendix to this chapter.

The three manufacturing groups shown in the table—defense related, high technology, and the large diversified manufacturing sector—had only modest employment growth. However, Figure 2-2 shows that *output* (in billions of dollars) in the manufacturing sector grew steadily—increasing by 50% percent in real terms.

This trend of continued growth of output with much smaller (if any) growth in jobs has been experienced throughout most manufacturing sectors in the national and world economies. It is explained by gains in productivity—output per worker—that result from education, training, and the use of more, and more sophisticated, capital equipment in each job.

Figure 2-2



Let's take a look at recent key developments in the region's economic base.

b. The Shrinking Role of Defense

The defense-related sector of the region's economic base is no longer large in terms of job levels compared with other sectors.⁷ In fact, as shown in Figure 2-3, defense activities have declined substantially as a share of the region's economic base. Yet continuing defense spending cuts loom large in the minds of most Southern Californians as an impediment to future economic growth.

The SCAG region economy is currently experiencing its second major decline in defense related employment since the 1960s. After the Vietnam War, defense-related jobs fell sharply—from 367,800 in 1967 to 250,100 in 1972—and stayed relatively stable until a new defense buildup began in 1979.

Between 1972 and 1979, jobs in the SCAG region grew faster than in the nation despite the stagnation in defense employment. Figure 2-4 clearly illustrates this development. As a result, the share of defense jobs in the region's economic base fell each year in the 1970s until the 1979 defense buildup.

The most recent defense spending peak in the region was in the mid-1980s. Defense-related jobs topped out in 1986-87 at slightly more than 330,000, and by mid-1993 had declined to just over 200,000. During the

⁷ The defense-related sector includes aircraft, missiles & space, search and navigation equipment, shipbuilding & repair, and federal civilian defense jobs. In these sectors, a significant share of activity is defense related. Some defense spending creates jobs in other industries in which not all production is defense related. The aircraft industry, for example, actually sells more than half its production in commercial markets. In 1991, shipments of commercial transport planes totaled \$26.9 billion nationwide compared to \$12.2 billion for military aircraft.

first years of defense spending cuts the regional economy continued to grow faster than the nation until the onset of severe recession in 1990.

Figure 2-3

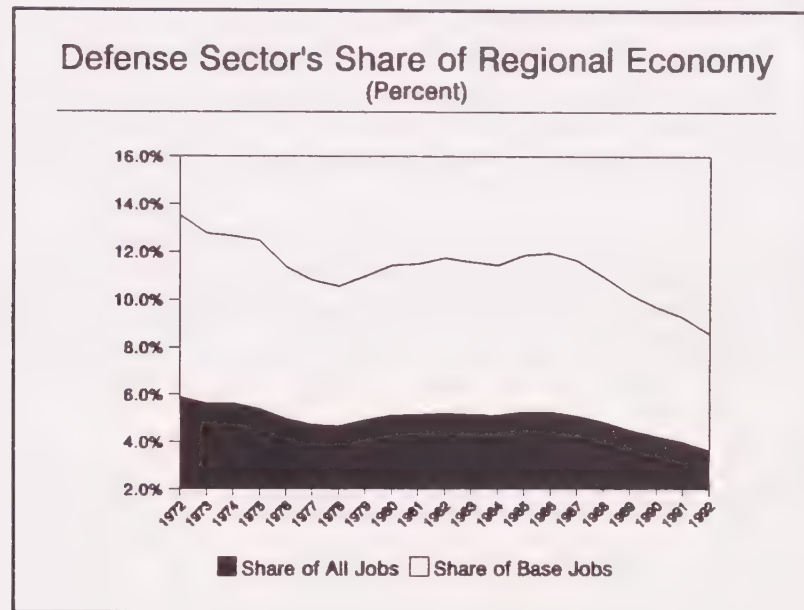
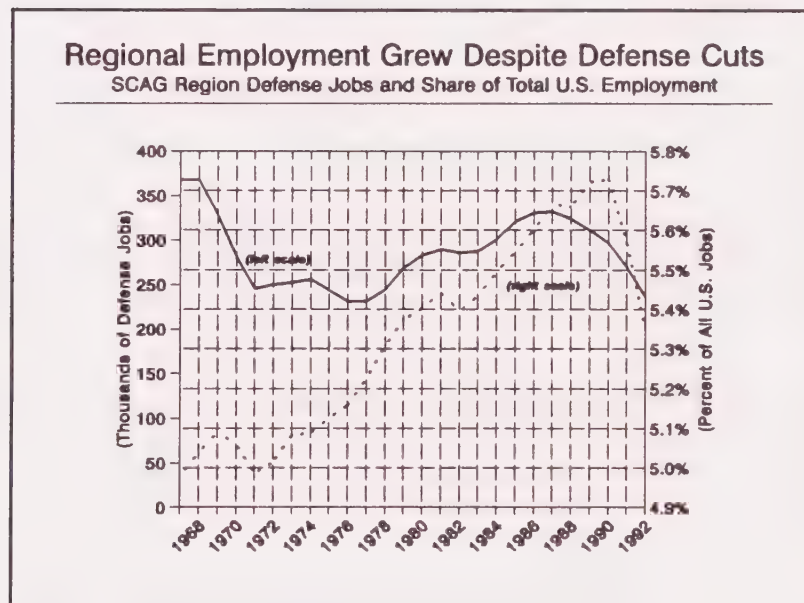


Figure 2-4



One defense-related industry in Southern California that has been hit hard not only by defense cuts but also by the current global recession is aircraft. The business downturn has brought a sharp decline in commercial

sales to both domestic and foreign customers. For all U.S. suppliers, the number of new firm orders for civilian aircraft dropped from 1,015 in 1989 to 231 in 1992.

Defense spending will continue to fall for the foreseeable future. Even at reduced levels, however, the numbers involved are still huge. Federal purchases will continue to exceed \$200 billion per year for the next several years, and retention of the region's competitive position in these markets is therefore a critical objective.

c. A Growing Role for International Trade

Foreign trade has emerged as a major sector in the region's economic base. The volume of merchandise trade through the Los Angeles Customs District has grown from \$6.2 billion in 1972 to \$121.8 billion in 1992 (see Table 2-2). Total trade, imports and exports combined, has increased by 16.0% *per year* for the past 20 years—a true growth industry!

Table 2-2
Los Angeles Customs District
Total Merchandise Trade
(\$ Billions)

	1972	1992	<i>Average Annual Growth Rate 1972-1992</i>
Exports	\$1.9	\$49.4	17.6%
Imports	\$4.3	\$72.4	15.2%
Total Trade	\$6.2	\$121.8	16.0%

The impact of international trade on the region is even larger than these statistics suggest. Trade in *services*, which is not included in the Customs District data, is growing even faster than trade in goods. For every \$3 in goods trade, there is now an additional \$1 worth of trade in services such as banking, insurance, and tourism.

A precise count of jobs associated with foreign trade is not available, but they are numerous and spread throughout most sectors of the regional economy. The rule of thumb used by the U.S. Department of Commerce is that for every additional \$1 billion of U.S. exports, 19,000 jobs are created. International trade creates jobs in three major ways:

- **Through the manufacture of goods in the region**
Leading exports from the region (1992) include Transportation equipment (\$8.0 billion), electrical equipment (\$5.6 billion), office machinery (\$4.6 billion), miscellaneous manufactured goods (\$2.7 billion), and professional scientific and control instruments (\$2.4 billion).

- **Through goods delivery**
The \$121.8 billion in trade in 1992 supported thousands of jobs in the trucking, wholesale trade, railroad, shipping, and air cargo industries.
- **Through trade in services**
Air travel and accommodations for tourist and business travelers is the largest area of trade in services. However, many other areas are taking off. Rapidly-growing markets include software and entertainment products (video, music), professional services, and education and health (foreign visitors using the region's universities and medical centers).

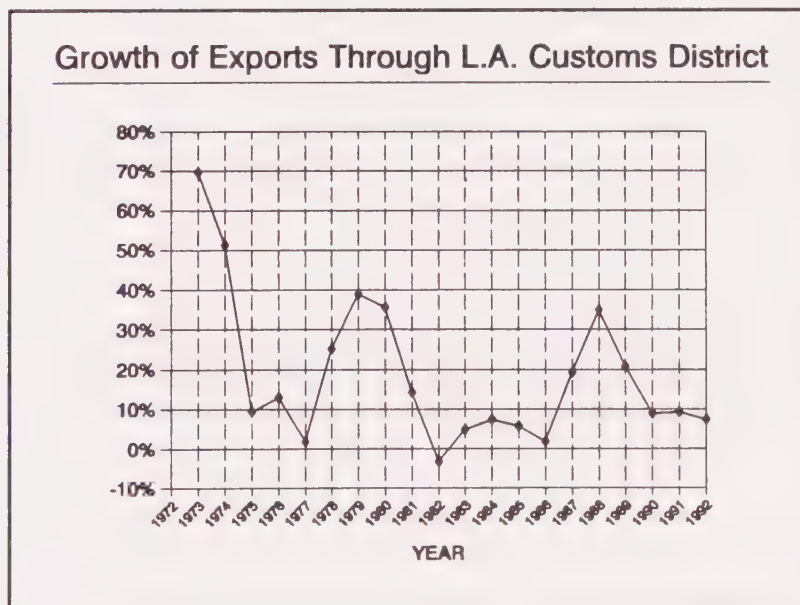
In addition, the region is a major center for deal making. Foreign trade requires financial, legal and other professional services. The SCAG region has developed into a major international business and financial center during the past two decades.

Fortunately, the recession so far does not appear to have hurt the value of international trade passing through the Los Angeles Customs District. Without foreign trade as a buffer, unemployment in the region would today be even higher than it already is.

d. Exports

The value of exports rose 9.2 percent in 1991, virtually the same as in 1990, and a further gain of 7.5% was posted in 1992 (see Figure 2-5). Considering the severity of the downturn in economic activity and employment in other sectors of the regional economy, these growth rates, although slower than in the 1988-90 period, nonetheless can be considered quite good.

Figure 2-5

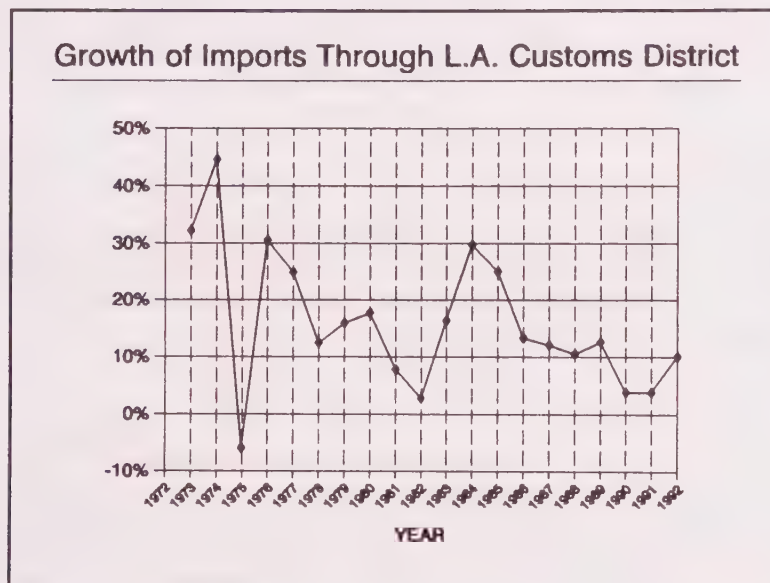


Other things equal, export growth depends more on changes in real economic activity abroad than it does on real growth in the region. The slowdown in export growth through LACD in the 1990-92 period reflects weaker GDP growth in Japan, other Asian economies and Europe in the past few years.

e. Imports

On the import side, however, weaker demand for foreign (mainly Asian and Latin American) products both here and elsewhere in the United States stalled import growth through the L.A. Customs District at only 3.3 percent in 1991 (*see* Figure 2-6). As import prices rose by more than this, the volume of goods handled fell, resulting, undoubtedly, in some loss of employment in the goods handling and transport areas. Surprisingly, the preliminary 1992 data showed import growth through the district up 8.5 percent, fairly close to the growth rates of 1987-89.

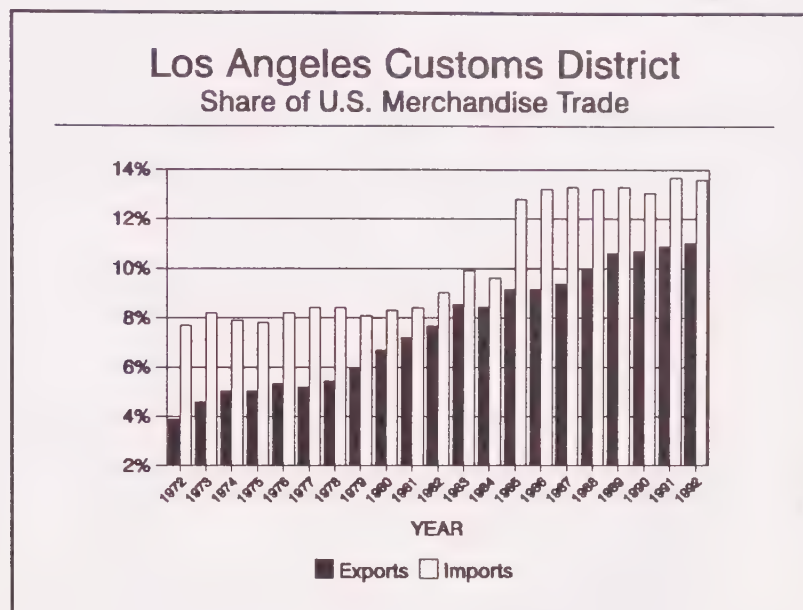
Figure 2-6



f. Share of total U.S. trade

The pattern of export and import growth through the Los Angeles Customs District in the past few years reflects trends in merchandise trade throughout the country. In fact, as Figure 2-7 shows, the LACD has steadily increased its share of U.S. trade—on both the export and the import side of the ledger—since the early 1970s.

Figure 2-7



Despite the region's deep recession and slow gross domestic product (GDP) growth for some large trading partners such as Japan, in 1992 the overall volume of trade through the area's ports increased by 8.1 percent—still outpacing the 7.7 percent national increase. In 1993 the Los Angeles Customs District passed New York as the nation's largest center for foreign trade.

The SCAG regional economic forecast recognizes the opportunities from foreign trade. All national forecasters expect foreign trade to grow at roughly twice the rate of the domestic economy in the years ahead—even without including added growth in exports from the proposed North American Free Trade Agreement (NAFTA).

International trade will remain a key component of the region's changing economic base. Strategies to enhance the region's competitiveness as a center for international trade and investment are a significant component of the regional economic strategy outlined in Section D.

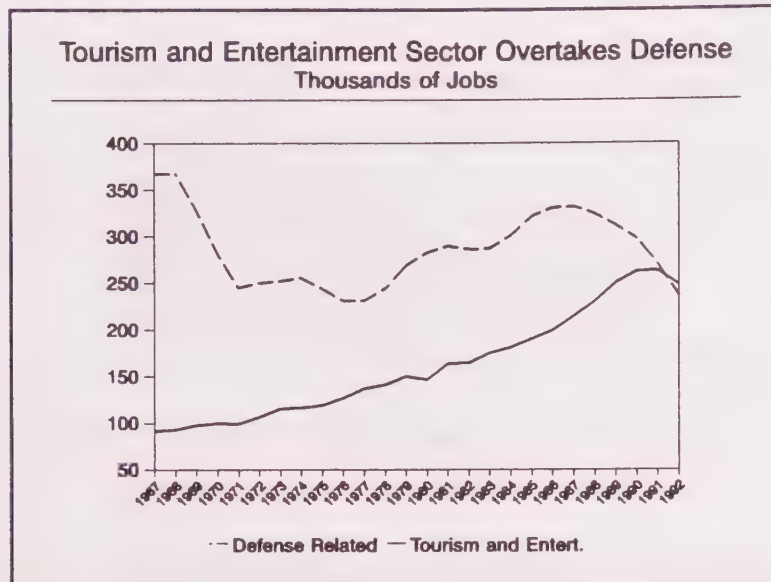
g. Tourism and Entertainment: Star Performers

Tourism and entertainment is one of the most important growth sectors in the region's economic base. As defined in our tables, this sector includes the hotel, motion picture, and amusement industries. Tourism creates employment in other sectors as well, such as restaurants, retail stores, car rental agencies and air travel.

From a base of 107,000 jobs in 1972, the sector expanded by more than 130 percent to include almost 250,000 jobs in 1992. This was the region's second highest employment growth rate, after Professional Services. Another sign of the impact of tourism and entertainment in Southern California is that in 1992, for the first time, these industries provided more jobs than the defense-related sector (see Figure 2-8). Moreover,

the region increased its share of the national industry steadily until 1992, when recession and the civil disturbances halted growth temporarily.

Figure 2-8



The long-term outlook for tourism and entertainment is positive. Rising incomes nationwide and worldwide will support above-average growth rates in all segments of these industries. Moreover, they provide jobs at a variety of wage levels from high-wage full-time jobs in motion pictures and television to lower-wage full- and part-time jobs in the hotel and amusement sectors.

The tourism and entertainment sector will continue to make a significant contribution to the regional economy as long as firms in the region are able to maintain their competitive position in this rapidly changing industry. The short-term picture has been mixed.

- The recession and riots both depressed the tourism industry in 1992.
- On the other hand, film starts reached a record high in 1993 and Southern California's share of U.S. film production is on the rise again. Within SCAG's six counties, where total wage and salary employment is still running 1-2 percent below year-ago levels, employment in the motion picture industry has been 12-15% above year-earlier levels—the only large sector with job growth anywhere near double-digits.

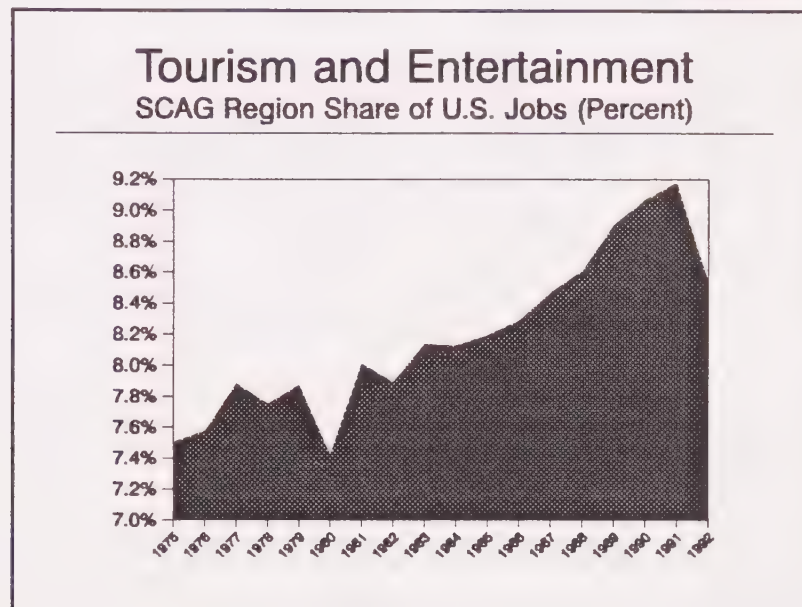
For the long term, the sector has been a star performer, as Figure 2-9 illustrates. Moreover, Disney is moving ahead with plans for a major expansion of Disneyland in Anaheim and Universal is growing its amusement holdings.

Whether the region's share of U.S. and world employment in these areas can continue to climb is a question for our regional economic strategy. Both the tourism and entertainment industries have raised concerns about the competitiveness of this area as a home base—in particular regarding permitting and regulatory issues.

h. Diversified Manufacturing: A Traditional Regional Strength

One way that the SCAG region economy overcame past defense cuts was capitalizing on growth opportunities elsewhere in manufacturing. Between 1972 and 1989, jobs in the region's

Figure 2-9



diversified manufacturing sector increased by more than 150,000 while similar jobs declined nationwide. As a result, the regional share of the national sector grew from 4.3 percent in 1972 to 5.4 percent in 1989.

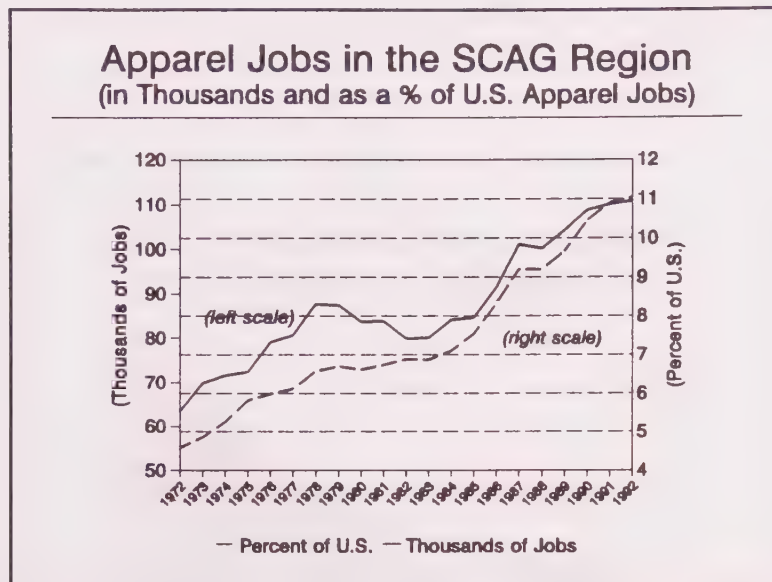
With more than 700,000 jobs even in the current recession, diversified manufacturing remains a significant component of the region's economic base. The largest industries in the sector in terms of production and jobs are apparel, fabricated metal products, plastics, chemicals, publishing, and furniture. While a small portion of this sector serves defense industries, the vast majority of jobs are linked to civilian markets.

Apparel has been one of the star performers with a steadily growing local job base even though deep job declines have been experienced nationwide (*see* Figure 2-10). In 1992 apparel accounted for 110,800 jobs and textiles another 13,500. Together apparel and textile production was almost \$10 billion and accounted for more jobs than the aircraft sector. Apparel has prospered in the face of foreign competition because Los Angeles has become an international design center.

Since 1989, the region's diversified manufacturing sector has declined in absolute size and lost a share of the national job pool. Part of the decline is associated with defense cuts and part with the region's deep construction slump. However, some diversified manufacturing firms have left the region for other reasons,

and there is deep concern that a deteriorating business climate is threatening the region's competitive position in this key sector.

Figure 2-10



Regaining a competitive advantage for diversified manufacturing industries is one key focus for the regional economic strategy outlined below.

i. Professional Services Are the Region's Biggest Employer

Professional service industries have become the largest sector in the region's economic base with almost 800,000 jobs in 1992. Job growth has been very rapid with a gain of more than 140 percent since 1972. Moreover, professional services will provide the largest component of potential future job growth in the region's economic base.

The region serves markets throughout California, the nation, and worldwide in industries like software, engineering and management services, and portions of the legal services, business services, and higher-education sectors.

Professional services often serve manufacturing industries. For example, Southern California is a major center for automobile design despite the absence of substantial car production in the region.

The competition for professional service jobs, usually paying high wages, points out the challenge in developing a competitiveness strategy for the region. While mature manufacturing industries often rank labor and other business costs as the dominant location factor, professional service industries more often value a

highly educated work force and quality of life considerations such as good schools, efficient transportation, a healthy environment, and world class recreation and entertainment opportunities.

j. High Technology: Jobs for the Future

National and worldwide demand for the products of technology will make sales of technology-based goods and services a leading growth market in the 1990s and beyond. Traditional measure of high-technology manufacturing included the computer, electronic components, and instruments sectors. Now, however, growth is also becoming significant in other markets such as environmental technology, bio-tech, and advanced transportation technology.

Historically, defense-related industries have dominated the region's technology sector while the civilian sector has been larger to the north in Silicon Valley. Public—private partnership efforts now underway, like CALSTART and Project California, represent an attempt by the region and state to seize the initiative and stake out a substantial competitive position in the technology markets of the future. A significant component of the regional economic strategy elaborated in Section E is likewise devoted to this end.

2. THE IMPACT OF RECESSION

The recession that struck California and the nation in the middle of 1990 still has not relaxed its grip on the SCAG region, even though signs of a recovery in the U.S. economy have been evident for more than a year. The text and graphs below illustrate the seriousness of this recession vis-a-vis previous business cycles in Southern California, in terms of employment, unemployment, taxable sales, construction, home prices, and local government revenues.

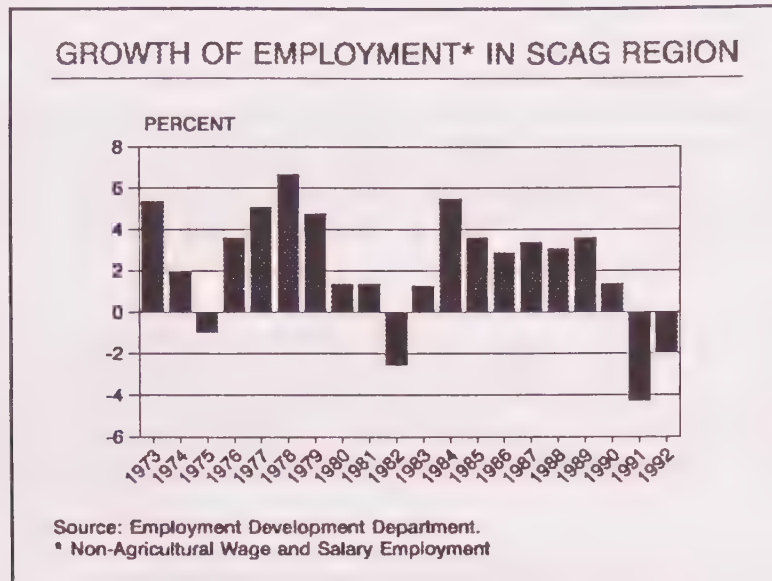
• Employment

Figure 2-11 on the next page shows year-to-year percentage changes in the number of people employed in the SCAG region. This figure traces the effects of business cycle recessions and recoveries from the early 1970s through the early 1990s. National (and regional) recessions occurred in 1974-75, 1981-82, and from mid-1990 onward. The bars below the line represent absolute declines (negative changes) in employment.

What is striking is the trend in job losses over time, with each recession resulting in a larger *percentage* decline than its predecessor. In addition to being deeper, the current recession in this area is already more prolonged than the 1974-75 and 1981-82 episodes. Employment fell by roughly 3 percent in both 1991 and 1992 and will register a further drop in 1993.

Expressed in terms of the *number* of jobs lost, non-farm payroll employment in the SCAG region peaked in December 1989. Between that point and the middle of 1993, more than 550,000 wage and salary jobs disappeared in the 6-county area. To put that figure into perspective, for every 100 jobs lost in California during this recession, 75 were from the SCAG region; nearly 65 of those jobs came from Los Angeles County alone.

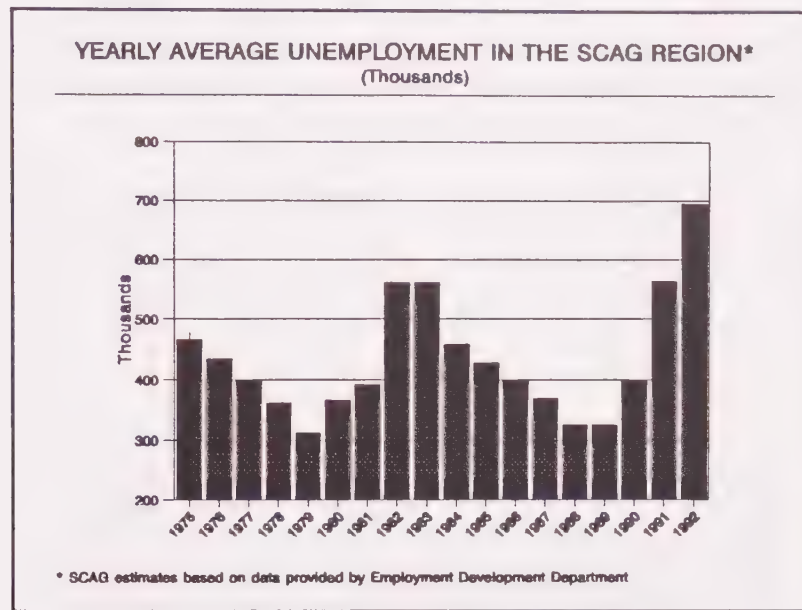
Figure 2-11



• Unemployment

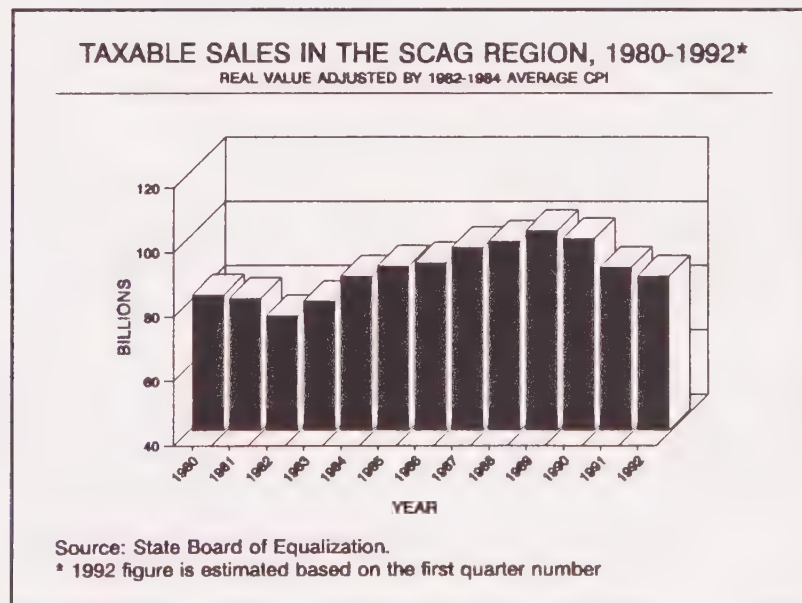
Figure 2-12 shows how the *number* of job seekers unable to find work has ballooned since 1989. While it is true that a rise in the number of people looking for work is partly a function of (working-age) population growth, the graph shows that unemployment can also fall even when population is steadily increasing: notice the downward trend in the number of jobless between 1983 and 1988, a period during which the labor force in Southern California grew by 16 percent.

Figure 2-12



It is also evident from Figure 2-12 that the jump in the number of people out of work during the current recession has already surpassed that of the 1981-82 recession. Worse, unemployment is a so-called "lagging" economic indicator, meaning that it continues to rise even after the trough of the business cycle has been passed. At this writing, we have no solid signs that the latter has occurred; thus we can anticipate yet higher jobless totals for 1993 and probably 1994 as well.

Figure 2-13



• Real taxable sales

The revenue derived from taxes on sales is a crucial component of the revenue structure of state, county, and municipal governments in California. Retail trade is also a major source of jobs. In 1992, this sector provided nearly a million jobs, slightly less than 15 percent of the regional total.

Figure 2-13 illustrates the impact of the ongoing recession on taxable sales in the six-county SCAG region. The graph shows sales adjusted for the effects of inflation; it thus portrays the *volume* of activity. Between 1989 and 1992^{*}, real taxable sales (i.e., adjusted for inflation) plunged by 13.9 percent and continued to fall. In the last recession (1981-82), by contrast, real taxable sales declined by only 7.9 percent before heading up again. Thus state and local governments have taken a serious, prolonged revenue hit.

Figure 2-14



• Permit activity

Building permits are a leading indicator of construction activity. Figure 2-14 shows the dollar value of planned construction represented by permits issued throughout the region for all uses—residential, commercial and industrial. (Similar graphs for each of these three uses can be found in Appendix 2.)

In 1990, as business activity fell and unemployment began to rise, vacancy rates in commercial buildings also started to rise and enterprises ceased investing in unneeded space. Housing demand ebbed and the upshot has been a precipitous drop in building permit valuation since 1989. The subsequent downturn in construction activity—which had not ceased as of mid-1993—explains the unprecedented fall in construction employment of late 1991 and 1992. All in all, the recent experience makes the previous (1982) cyclical downturn in permits look like a tiny dip.

* 1992 figure is estimated by SCAG based on the first quarter 1992 number.

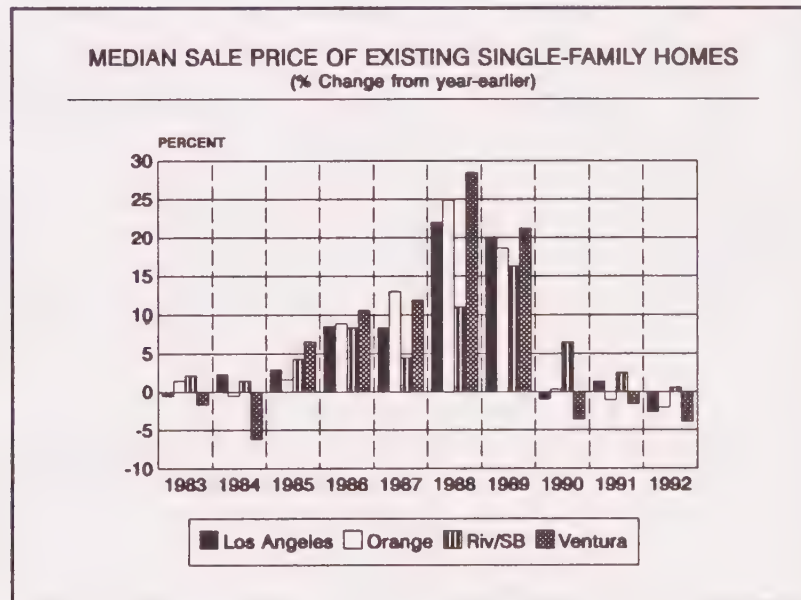
- Home prices and their impact on local government revenues.

Having risen by 10-20 percent or more in both 1988 and 1989, prices of existing single-family homes suddenly dropped throughout most of the SCAG region in 1990 and 1991 (see Figure 2-15). The exception was the Riverside-San Bernardino MSA, where existing home prices kept climbing, although at a much slower pace.

Along with the drop in value of individual transactions, *turnover* (number of homes sold) slumped, seriously affecting government receipts from property taxes. The commercial and industrial building market was, if anything, a worse drag on local government finances.

Combined with the slump in sales tax receipts, the turnaround in property tax revenues put local government (city and county) in its worst fiscal straits in decades. The result? Cost-cutting efforts that invariably involved layoffs, aggravating the unemployment situation.

Figure 2-15



3. ECONOMIC TRANSITIONS

In addition to the deleterious effects of the 1990-93(?) recession, and undoubtedly more important in the long run, the region was simultaneously confronting profound economic transitions, or structural changes. The principal ones identified in SCAG's work with area businesses are the following:

- Reduced defense spending, including the impacts of base closures.
- Implementation of air quality regulations.

- Impacts on industry.
- Impacts on transportation and land use.
- Changing demographics of the work force.
- Water availability and quality.
- A possible North American Free Trade Agreement (NAFTA) between the U.S., Canada and Mexico.
- Structural changes in industry (labor requirements), including a major shakeup in the financial sector.

All of these forces will affect the operation of the regional economy during the next 10 to 20 years, and each raises issues for private and public sector decision makers. For example, there is little disagreement that defense cuts have had a negative impact on total employment in the region. The issues are the following: Should defense spending reductions be a concern to the entire region, or only to individual workers and firms? Even if the defense cut transition is offset by other positives in the regional economic outlook, what of individual workers and companies? Can they make the transition to new jobs and products? Should their transition be of concern to the rest of the region's residents? How should closed military facilities be used in order to maximize the economic growth and competitiveness of the region?

In the environmental area there is concern that the *implementation of air quality regulations* by the South Coast Air Quality Management District (SCAQMD) will lead or even force manufacturing firms to leave the region. Despite an enormous amount of conflicting debate on this question little real evidence has emerged. Thus the question is still unanswered: are environmental regulations a threat to the Southern California economy?

Even if, on the whole, regional economic growth can continue while we clean the air, there will clearly be gainers and losers. Some industries, such as furniture, may find meeting the regulations too costly or difficult. On the other hand, new firms will almost certainly evolve to provide the technology, equipment and services to reduce emissions.

Many changes in the region's transportation system will also be required as a result of federal and state mandates to reduce pollution. Automobiles will be redesigned, new transportation systems will be built, and the cost of driving alone will go up. Gasoline taxes, vehicle emission fees, elimination of employer-paid parking, toll roads, and congestion pricing are all being seriously examined, if not already mandated, within the state or the region.

The most dramatic transition of all is already underway in Southern California's labor force. A *wave of demographic change* is sweeping the region. Nearly all of the future population and labor force growth will be Hispanic and Asian, and most of the new residents and workers will be recent immigrants or children of recent immigrants.

These demographic changes, coupled with the rising skills requirements of new jobs in the region, raise the possibility of a serious jobs/skills mismatch in the years ahead. It is important to note, however, that this

potential mismatch is an issue that cuts across all ethnic groups. There is strong evidence that the labor force preparation of students graduating from Americans high schools is deteriorating regardless of ethnic origin or immigrant status.

As for skills requirements, research conducted by SCAG for the Ford Foundation on regional work force and economic development issues points to the rapidly-changing nature of middle level jobs. Intermediate level job opportunities are not shrinking, on the whole, but such positions are moving from the factory to the office. Skills requirements are shifting from manual to interpersonal.

The state and regional water resource control boards are implementing vigorous policies to protect Southern California's *water quality*. At the same time, increasing demands for water in the region are running into limits on long-term water supply. Both water quality and supply issues raise the possibility of altering the relative competitiveness of industries in the region. Further, the introduction of market pricing into the water supply-demand equation—various proposals for which are under discussion in Sacramento—would undoubtedly alter traditional ways of doing business and lead to employment shifts in many sectors of industry.

The North American Free Trade Agreement (NAFTA) will extend the benefits of the Canada-U.S. Free Trade Agreement (1988) to Mexico, creating the world's largest free-trade zone: 360 million consumers and a total GDP of more than \$6.5 trillion. Trade liberalization always produces industries that gain and industries that lose. What will be the impacts—both positive and negative—of NAFTA or other trade expansion initiatives on the Southern California economy?

Finally, industry in this region, as in the United States generally, has undergone *profound structural change* in the past several years. Developments that have significantly affected both the business climate and the level of employment include the following:

1. The boom in mergers and acquisitions.
2. A virtual revolution in methods of financing business (high priority on restoring "health" to balance sheets, and a myriad of innovations in the securities markets).
3. The "lean and mean" approach to balance sheets affected not only financial management but also personnel management: employment was "downsized" to the maximum extent possible to cut costs and many functions formerly performed by full-time employees were "out-sourced" to save on overhead expense.
4. Computerization and the electronics/telecommunications revolution boosted labor productivity, further reducing the number of workers required to produce a given level of output.
5. The near-collapse of the financial sector in the wake of the savings and loan and junk-bond debacles of the 1980s.

To some extent, these shifts were necessitated or accelerated by the severity of the region's recession. In large part, however, they are the result of intensified national and international competition, a factor that must be dealt with in a long-term, strategic context.

The economic transitions we have been discussing all raise certain common questions.

- Will the change negatively affect the regional economy?
- Who are the individual gainers and losers?
- Are there "least cost" strategies to seek in responding to these transitions?
- Does every transition require a policy response?

Aerospace workers laid off as a result of cutbacks in defense spending share their experiences with furniture workers displaced by the cost of air quality regulations and farm workers affected by water constraints or free trade with Mexico. By addressing the *commonality* of the experience, policy-makers and the public will recognize that many individuals and firms are being simultaneously affected by economic forces beyond their control.

The common dimensions of transitions the region is undergoing must be charted to develop the proper constituency for policy responses. Residents and decision makers are interested in the future of the regional economy as a whole. Thus all transitions need to be examined simultaneously. The impacts of defense cuts on the region's manufacturing base must be looked at in the context of other forces such as air quality regulations and water issues—as well as positive forces such as growth in world trade and technology.

4. THE ISSUE OF ECONOMIC COMPETITIVENESS

Although there are, as discussed earlier, a number of areas of strength in the region's economic base, there can be no doubt that Southern California's competitiveness has suffered in recent years. Whether the measure is job growth or gains in real per capita income, the Southern California economy is currently trailing the nation.

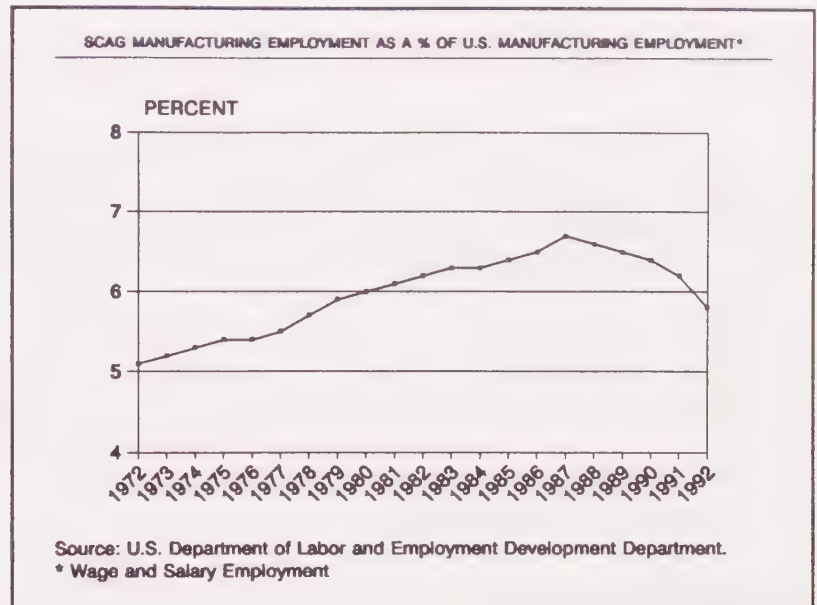
The situation in manufacturing is indicative. That the number of manufacturing jobs in the region has declined comes as no surprise. Indeed, for the country as a whole, both employment and the share of manufacturing in GDP have been declining for a number of years. What is disturbing is that manufacturing employment and output in the SCAG region have been falling *relative to the rest of the nation*.

Figure 2-16 shows the ratio of SCAG region employment to total U.S. employment in manufacturing. Note the pronounced downturn since 1987, as well as the fact that in neither of the two previous recessions shown (1974-75 and 1981-82) did Southern California's share decline (i.e., as long as both the U.S. and the region are in recession at the same time, recession *per se* does not explain loss of share).

Part of the post-1987 drop is the product of cutbacks in federal defense spending and the region's over dependence on defense-related industry. For the most part, however, the fall in the ratio reflects an exodus of manufacturing facilities from the Southland and loss of markets to other competitors in the U.S. and abroad.

To be sure, manufacturing is not the only type of activity we need in Southern California. Neither, however, is it the only area in which we have a competitiveness problem. Since 1987, the region's share of national employment has fallen in all major (single-digit SIC) employment classifications but one: government.

Figure 2-16



Even if today's business climate were satisfactory, the challenge of maintaining regional economic competitiveness grows greater each year. Firms in an increasing number of industries have a choice of sites around the world for the location of new and expanded facilities. Firms can choose not just between Southern California and Texas but between California, Japan, Mexico, Malaysia, and European locations. This is particularly true in high value added industries.

Under these circumstances what does it mean for Southern California to be competitive in attracting high paying jobs? *The main determinant of industry location in the long term is whether or not a region has competitive resources.* Regional policy makers need to be concerned with four major categories of competitive resources, which are considered to be the foundations of economic growth.

- A Competitive Work force.
- Competitive Infrastructure.
- A Competitive Quality of Life.
- Competitive Business Climate.

The following is a brief discussion of each of these resources. Each of the other RCP chapters contain detailed strategies for improving these foundations.

a. Work force Quality

Business location studies consistently show that the quality of an area's work force is the principal determinant of long-term location/expansion decisions. All recent studies of California's business climate also agree that our kindergarten through 12th-grade educational system needs serious attention and reform. Budget cuts are increasingly putting the state's higher educational system at risk.

The Human Resources and Services chapter of the RCP deals in considerable detail with strategies for improving the quality of the region's work force.

b. Infrastructure

Infrastructure is also a key determinant of business location. Can people, goods, and information be moved quickly and at competitive costs? In the 1990s telecommunications networks—which determine how fast and efficiently information can be moved—will be a new area of infrastructure competition. Infrastructure also includes providing adequate supplies of water and energy and handling the waste products of industry and

people. The latter are dealt with in the Water Resources, Water Quality, and Waste Management chapters of this plan.

Numerous studies in the 1980s documented California's infrastructure backlog. A recent report by the California Council for Environmental and Economic Balance (CCEEB) sums up the current situation:

"In California, deferred maintenance and low investment in our infrastructure has caused us to lose our economic edge, has led to increased social tensions, and threatens the beauty and viability of our natural environment. No conscientious homeowner would let a house deteriorate to the current shape of our California home.

Our state's infrastructure has been the solid foundation of California's economic miracle. The decline of that infrastructure is the most serious crisis we face, and is an important factor underlying the economic malaise California faces in the 1990s and beyond."⁹

As the CCEEB report states, public investment in the 1950s and 1960s averaged 20 percent of state spending. By the 1980s, public investment had declined to less than 5 percent of the state's spending.

c. Quality of life

The second strategic goal of the RCP is to improve the quality of life in the SCAG region.¹⁰ Quality of life is a business location determinant as well as a social goal. In fact, education and infrastructure also address social goals while affecting Southern California's competitiveness as a business location. Quality of life includes environmental amenities, adequate resources to combat crime, cultural resources, affordable housing, and efficient transportation systems.

Quality-of-life variables are particularly important in attracting and retaining high value added basic industry. Since such companies are welcome virtually anywhere in the world, only areas that compete well on quality of life, as well as business costs and infrastructure, will prove successful.

Factors affecting, and objectives for improving, the quality of life in the SCAG region are discussed in detail in the Strategy chapter (Chapter 1) of the RCP.

d. Business Climate

Deterioration in Southern California's business climate was a major contributor to the region's relative economic decline in the past few years. Adverse factors in the business outlook included perceived anti-business policies at the state and local levels and the severity of the area's recession, which has been both deeper and more prolonged than elsewhere in the state and the country as a whole.

Rules and regulations have been a principal focus in many recent analyses of California's business climate. Major complaints from the business community are about the following:

⁹ *Our Endangered California Home*, California Council for Environmental & Economic Balance, 1992.

¹⁰ Subregion input: Los Angeles City, West Riverside Council of Governments.

- A workers' compensation system with high premiums and relatively low benefits.
- Complicated and lengthy permit processes for most economic development projects (land use, construction, operating permits).
- Complex and costly procedures required to meet environmental regulations.

Rules and regulations are a factor in business location along with work force, infrastructure, and quality of life considerations. Southern California cannot ignore the implications of permit processes on location decisions any more than the state can ignore the implications of educational funding decisions on this region's economic competitiveness.

A fundamental objective of the RCP is to develop effective methods for coordinating and simplifying regulatory processes so that the purpose of the regulation is achieved, *but at a lower administrative and implementation cost*. Each RCP chapter will examine the cost of meeting the appropriate public policy objectives and suggest ways to reduce these costs.

On the positive side, the challenge of restoring competitiveness carries within it the seeds of a solution. The combination of recession and structural change which has so dimmed the outlook in Southern California may eventually turn out to have been the best thing to happen to this region since motion pictures. The reason: economic adversity such as that we are presently experiencing forces people to think in ways they never would have, to move in directions they would never have dreamed of taking. Necessity is the mother of invention. Professor Michael Porter of Harvard, author of the influential book *The Competitive Advantage of Nations*, puts it this way:

The fundamental lesson is that the quiet life is an enemy of competitive advantage. Industries thrive when they are forced to overcome high labor costs or a lack of natural resources, when their customers won't accept inferior or outmoded products, when their local competitors are many and murderous, and when government offers no protection from fair competition and sets tough technical and regulatory standards.¹¹

Clearly, many of these conditions exist in Southern California today. Porter's findings, which are now mainstream thinking, are the basis for optimism that the present situation can be corrected. Long term planning can assist in this process by maintaining a *regional*, "big picture" perspective and by stirring things up; i.e., by delineating strategies for the public and private sectors to follow and, if necessary, by prodding the appropriate players into action.

¹¹ *Fortune*, March 12, 1990, p. 95.

D. SCAG'S LONG-TERM FORECAST

The SCAG regional forecast foresees job growth of more than 2.6 million and population gains of almost 6 million between 1990 and 2010. Total jobs in SCAG's six counties are projected to increase from 7.1 million in 1990 to 9.7 million in 2010—a gain of over 37 percent (*see* Table 2-3). In view of recent declines in employment—especially in construction and defense-related—this is a substantial increase. Yet it is well below the region's historical performance: in the 18 years from 1972 through 1990 employment in the SCAG region jumped by more than 66 percent.

Table 2-3

SCAG Region Population and Jobs (Thousands)

	<i>Current Forecast</i>			1989 GMP Forecast 2010
	<u>1990</u>	<u>2010</u>	<i>Percent Change</i>	
Population	14,641	20,507	40.1%	18,256
Employment	7,060	9,679	37.1%	8,954

Projected employment growth will support a population of approximately 20.5 million residents in 2010. The region's population will grow by 5.9 million or 40.1 percent. The current forecast is almost 2.3 million higher in 2010 than the population forecast in the 1989 Growth Management Plan (GMP). Details on the region's population growth and characteristics can be found in the Growth Management chapter of the RCP.

Why will there be so many jobs and people in the region, one might ask. Southern California's growth is dependent on two main factors:

1. The number of additional people and jobs *in the nation*.
2. The *share* (percentage) of those jobs and people that chooses to locate in the SCAG region.

Rising birth rates and growing immigration levels have led the Census Bureau to dramatically raise their U.S. population projections. Approximately 50 million new residents are now expected by 2010 compared with the previous projection of 33 million.

Fifty million new residents in the United States will require the creation of almost 35 million more jobs between 1990 and 2010. When the 1989 GMP was prepared the outlook was for only 27 million new jobs by 2010. Thus, one major reason the new SCAG forecast is higher is that the pool of new jobs and population that the region is competing for is much larger than previously expected.

SCAG forecasts the region's share of the nation's added jobs and population by 1) analyzing the region's expected share of new jobs separately for each of 49 basic industries; 2) deriving from these a set of forecasts of 21 local ("non-basic") industries based on analysis of trends in the ratio of non-basic to basic jobs; and 3) incorporating region specific birth rate and labor force assumptions by ethnic group to reflect the region's changing demographic characteristics.

Job growth in the region's economic base is shown in Table 2-4. Southern California is expected to gain further from strong growth in the professional services and tourism and entertainment sectors—each with projected job growth of near 70 percent. Continued brisk expansion of foreign trade will support these sectors as well as the region's transportation and wholesale trade firms.

Table 2-4
SCAG Region Economic Base Forecast
(Thousands of Jobs)

	<u>1992</u>	<u>2010</u>	<i>Percent Growth <u>1992-2010</u></i>
Professional Services	798.8	1342.0	68.0%
Diversified Manufacturing	721.8	876.0	21.4%
Transp. & Whlsale Trade	526.5	769.7	46.2%
Tourism & Entertainment	248.3	414.6	67.0%
Defense Related	236.2	250.3	6.0%
High Tech Manufacturing	111.9	128.0	14.4%
Resource Based	116.8	126.7	8.5%
Total Base Jobs	2,760.3	3,907.4	41.6%

Manufacturing is projected to show a modest rebound from today's depressed job levels, with diversified manufacturing, now its largest component, posting a 21 percent increase in employment. The defense related sector will also grow eventually as a result of gains in jobs producing for the commercial aircraft market.

Table 2-5 on the next page shows SCAG's employment forecast organized by major industry group (single-digit SIC codes), a classification that facilitates comparisons with the 1989 GMP forecast. With three exceptions, the new 2010 totals are all higher than in the 1989 GMP. The interesting part of the comparison is that 2010 employment is projected to be lower than in our previous forecast in agriculture, mining, and manufacturing. Mining and farm jobs are projected to decline in the region both vis-a-vis 1990 and relative to the old forecast. More capital intensive methods of production and housing demand pressures on land use and land values are the major factors behind employment losses in these two sectors.

Table 2-5

EMPLOYMENT FORECAST COMPARISONS Current vs. 1989 GMP (Thousands of Jobs, Except as Noted)				
	1990 Actual	2010 Forecast		1990-2010 Growth
		1989 GMP	Current	Current Forecast (Percent)
Agriculture	59	66	51	-13.0
Mining	14	21	12	-15.4
Construction	299	300	370	23.8
Manufacturing	1,230	1,514	1,239	0.8
Transportation and Public Utilities	305	408	422	38.5
Trade (Wholesale and Retail)	1,502	1,928	2,125	41.5
Finance, Insurance and Real Estate	432	550	595	37.7
Services	1,775	2,612	3,011	69.6
Government	860	880	1,075	25.0
Self-Employed	537	610	709	31.9
Sub-total	7,012	8,890	9,609	37.0
Imperial County (all jobs)	48	N.A.	70	45.8
SCAG Region Total	7,060	N.A.	9,679	37.1

N.A. = Not Available

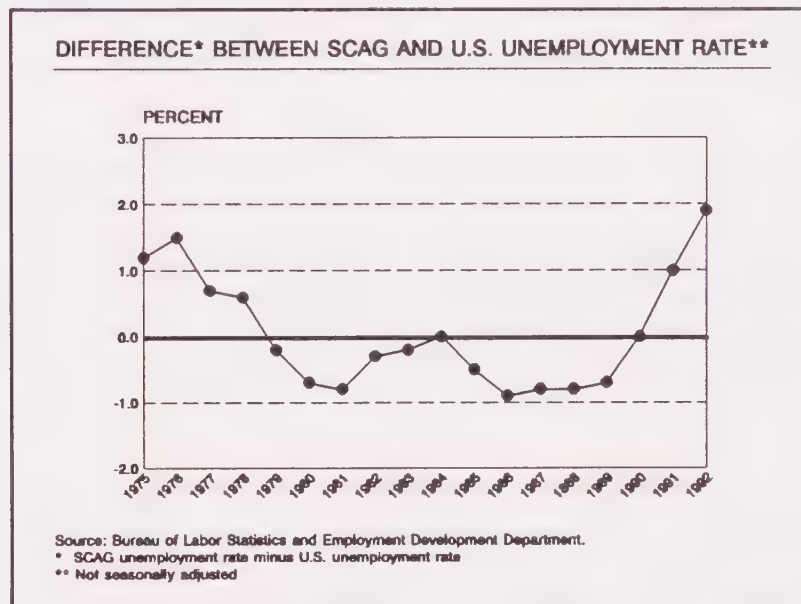
Table 2-5 shows the big picture on manufacturing. Combining all its parts, manufacturing employment overall shows virtual stagnation over the forecast period. In stark contrast, the 1989 GMP projected a total of 1.5 million factory jobs in 2010, almost 275,000 more than the current forecast and an increase of 23 percent from the actual manufacturing employment level in 1990. The difference results from the combination of two forces: slower growth in U.S. manufacturing jobs and the permanent loss of employment from this region due to defense spending cuts, business restructuring, and business relocations.

The distribution of jobs among the major categories in 2010 is also considerably different now than in previous forecasts. By 2010, the share of manufacturing in total employment in the region falls from 17.4 percent (in 1990) to slightly less than 13 percent. The share of services in the regional total meanwhile rises from slightly more than 25 percent to more than 31 percent.

Combining SCAG's forecasts of population, labor force and jobs indicates that *if nothing else changes*, the region's labor force during the 20-year Plan period would exceed the number of jobs here by about 8-1/2 percent on average; by the year 2010 this gap would still be on the order of 6-7 percent. In other words, the region's hypothetical unemployment rate in 2010 would still be about one percentage point higher than the national average forecast by the U.S. Bureau of Labor Statistics—quite apart from any additional negative impacts if the region happened to be in recession at that point.

To put that into perspective, the SCAG region's jobless rate has typically run well below the corresponding U.S. average in non-recessionary periods (*see* Figure 2-17). The "something" that must change to bring this relationship back to normal is the adoption of a regional economic strategy to revive and expand basic industry. We turn to this subject in the next section of this chapter.

Figure 2-17



E. STRATEGIES FOR ECONOMIC PROSPERITY AND EQUITY

The decline in basic industry's share of total regional employment and output must be reversed. Basic industry has large multiplier effects on the economy and jobs, as well as higher wages and benefits than most other types of economic activity. More specifically, the region must increase its share of employment in those industries and service sectors where wages and salaries will be higher than average and where growth nationwide and internationally is expected to be strong.

As noted earlier, however, many of the nation's industrial states and regions will no doubt be setting the same sorts of goals. Southern California must therefore focus its efforts on those industries in which it also has comparative advantage. The four "T"s—trade, transportation, technology, and tourism/entertainment—for example, meet most of the criteria specified above. Manufacturing sectors such as pollution control equipment and biomedical devices also appear promising. More will be said about such industries later.

1. INTRODUCTION: THE NEED FOR A REGIONAL FOCUS

How can the region exploit its comparative advantages? An improving business climate is necessary but not sufficient. An entirely new approach is called for; new forms of industrial organization, a new breed of entrepreneur, and substitution of market solutions for government controls wherever possible. Market and employment share can only be increased by raising the level of investment in the region. An adequate level and proper mix of public and private investment are the keys to strengthening competitiveness, boosting employment and securing long term gains in personal income and living standards.

Current regional economic thinking identifies two fundamental factors that influence which regions will attract investment and achieve strong gains in real income: the organization of key *industrial clusters* and the *economic foundations* that support them. These concepts—industrial clusters and economic foundations — form the basis for the strategies laid out below to enhance the economic competitiveness of the SCAG region economy.

a. What are Clusters and Why are they Important?

Joint Venture: Silicon Valley, a two-year old effort to develop a regional economic strategy for basic industry in Northern California's Silicon Valley, answers these questions in the following manner.

In the most advanced economies worldwide, one or more industry clusters serve as the driving force of the regional economy. At the core of the cluster are geographic concentrations of interdependent, internationally competitive firms in related industries. These firms can include companies that make or help make a final product, as well as specialized suppliers and service providers. Clusters include large companies and small companies, domestic and foreign firms.

Supporting the cluster firms are specialized economic foundations in areas such as work force, technology, new business support, and communications/information infrastructure. Foundations are provided both by the public sector (e.g., universities, airports) and by companies (e.g., venture capital firms, marketing firms).

A salient feature of clusters is that they are self-regenerating, their elements mutually synergistic and energizing. Intense competition and close cooperation spur innovation across industries. The specialized, fluid work force and the geographic proximity make information accessible and reduce transactions costs within the region. As they develop, cluster firms create demand for new types of products and services, some of which can be supplied by existing or new local firms. Customers or partners of local companies can be attracted to the cluster and the region. In short, the cluster dynamic gives companies and their regions a competitive leg-up against others.

Without healthy clusters, the rest of a region's economy — retail, services, and government — cannot prosper. In addition to selling their products and services locally, cluster firms sell globally and bring outside dollars into the region. These dollars pump up the regional economy as firms buy products from other sectors in the area. Their employees also spend their paychecks at local stores and restaurants, and buy local homes. This "multiplier effect" of high-tech industries is exceptionally strong.¹²

b. Why is a Regional Strategy Focus Needed?

Successful industrial clusters are almost always found in well-defined regions. Whatever the precise reasons, the evidence clearly suggests that they work best with the "glue" of a region to bind them. In Southern California, major producers and many key suppliers are spread throughout the region in aircraft, apparel, motion pictures, and tourism. We think of these sectors as areas of strength in Southern California's regional economy. In Northern California the electronics and computer clusters define the economic base of Silicon Valley.

Regions with expanding economies, whether in Austin, Texas, in Italy, or in Japan, have discovered the value of an active collaboration between the private and public sectors. An active dialogue between private industry and the public sector is helpful no matter what the challenge is; whether developing infrastructure (ports, airports, highways) to support the growth of foreign trade or strategies to ensure that the K—12 education system is a competitive economic foundation for regional growth and prosperity. The fact is, *those regional economies that are succeeding in today's global marketplace are regions where people are talking and acting together.*

c. What are the Basic Responsibilities of the Private Sector?

The private sector needs to develop a collaborative approach to production, including shared technology and basic research. Activity is already underway in Southern California to implement such an approach. But much more needs to be done in the area of organizing industrial clusters. Private industry and labor will also have to cooperate with and supplement the public sector in educating and training labor for technical specialties. Relationships will have to be forged in basic research; i.e., among individual firms and between them and California's excellent universities.¹³ [Expand—include flexible manufacturing]

¹² *Blueprint for a 21st Century Community*, Joint Venture: Silicon Valley, June 1993, pp. 25-26.

¹³ Subregion input: North Los Angeles County.

2. REGIONAL ECONOMIC STRATEGIES CONSORTIUM (RESC)

[The ideas discussed in this section are intended as an outline, a potential agenda to be filled in detail by the public/private sector participants in these joint ventures.]

To provide the "glue" necessary to bind the other foundations together, leadership will clearly be required. The 2000 Regional Partnership, SCAG and the Los Angeles Area Chamber of Commerce should form a *Regional Economic Strategies Consortium (RESC)* comprising representatives of existing regional and subregional development bodies such as Partnership 2010 and the Inland Empire Economic Partnership, labor, industry and trade associations, etc.¹⁴ Its precise mission, organizational structure, financing, etc. will be defined by the Consortium leaders and partners. In general terms, the Consortium would:

1. Promote (market) the entire region--both domestically and internationally.

A portion of existing promotion funds at all identifiable levels—cities, counties, the Los Angeles Convention and Visitors Bureau, major attractions, port authorities, etc.—should be pooled for the purposes of marketing the region. The idea is to get businesses and tourists to the region, then let the various interests compete for the specific location within it. Voters in the six-county region might even be asked to consider a fractional add-on to sales tax for this purpose. Promotion/marketing would be a specialized economic foundation for the region, supporting of its clusters.

One example of a novel (and apparently successful) approach to promotion is contained in the "Massachusetts Initiative," a 1991 plan for economic recovery that enlisted government, business, and academia in a joint effort.¹⁵ The privately sponsored "Massachusetts Ambassador" program consists of a diverse group of 150 "ambassadors". Most are CEOs who agree to personally make three calls or host three receptions for targeted business executives over a two-year period. The ambassadors go to these meetings armed with up-to-date information on the target company and on the principal advantages Massachusetts can offer.

2. Support the development of regional industry clusters. RESC task forces would be organized around specific clusters. A key task would be to determine what foundations will be required for each and how their common features (e.g., training) can be combined.
3. Ensure that proposed changes in public policy do not significantly impair the ability of firms in this region to compete and that So Cal gets its fair share of federal and state assistance in areas that affect the area's competitiveness. Some suggested topics for attention are discussed in subsection B, below.
4. Help secure financial assistance to industry, particularly small and medium-size firms. Creating access to relatively low-cost sources of capital would be another critical foundation area.

¹⁴ RESC concept and organization structure supported by: Arroyo Verdugo Subregion, Los Angeles City, North Los Angeles County, San Gabriel Association of Cities, Southeast Los Angeles County, South Bay Cities, West Riverside Council of Governments.

¹⁵ Robert Sullivan, "Massachusetts Takes the Initiative," in *Hemispheres*, January 1993, pp. 25-26.

The economic strategy developed by SCAG in conjunction with area business, community groups, and the SCAG subregions comprises three major components: first, expanding and diversifying our economic base; second, lowering business costs and increasing competitiveness; and third, a long-term investment in Southern California's communities-in-need.

3. STRATEGIES TO EXPAND AND DIVERSIFY THE REGION'S ECONOMIC BASE

A state-of-the-art strategy to energize basic industry¹⁶ will require collaboration and cooperation through industrial clusters in order to improve competitiveness and stimulate real fixed investment. The first step is to increase the awareness of both the private and the public sector in the region as to what efforts are already under way toward forming clusters.

IDENTIFYING INDUSTRIAL CLUSTERS: SECTORS WITH STRONG GROWTH AND EMPLOYMENT POTENTIAL

As in other economically-developed regions across the country, there are a number of potential clusters in the SCAG region, each with its own unique contribution to make to Southern California's economic base. The list below—which is not meant to be exhaustive—includes the sponsoring organizations identified by SCAG that have agreed to prepare the discussions of these clusters for the final version of the RCP. The list is followed by a brief discussion of each of the clusters for which write-ups are presently available.

- The apparel industry (including textiles and fashion design): *Southern California Edison Co.*
- Entertainment: *Alliance of Motion Picture and Television Producers*
- Tourism (including lodging, transportation, and food): *Wedin Enterprises Inc.*
- Environmental technology: *City of Pasadena*
- Aerospace and defense: *The Economic Development Corporation (EDC) of Los Angeles County*
- Foreign trade services: *The Greater Los Angeles World Trade Center Association*
- Advanced transportation systems and technology: *Project California*; and "Project Southern California" *Regional Economic Strategies Consortium (RESC)*
- Biomedical equipment industry: *Partnership 2010*

The Apparel Industry

Southern California Edison's apparel industry initiative is an example of the type of effort under way to meet the competitive challenges facing key industries in the region. Based on an analysis of regional economic dynamics, Edison identified the apparel industry, with over 100,000 workers and a complex of additional interlinking supplier and support industries, as one of several key industry clusters that not only manifested a significant locational strength, but had the potential to serve as a growing economic force for the regional economy.

¹⁶ Subregion input: Arroyo Verdugo, San Gabriel Valley Association of Cities, North Los Angeles County, Southeast Los Angeles County, South Bay Cities Association, West Riverside Council of Governments.

The industry's importance as a job provider is magnified by the fact that it employs a large and diverse concentration of immigrants and native minorities. Thus it continues to serve its traditional role as a transition industry for workers who aspire to a better life for themselves and their children. Moreover, apparel is one of the few industries in which many successful entrepreneurs and managers are without college degrees. The Southern California apparel industry cluster promises additional growth and business opportunities because the region is the nexus of design, marketing, and export-related elements as well.

Despite the significance and potential of the industry in this region, there are indications that it is facing increasingly difficult competitive challenges. Some of these arise from global changes such as the initiation of NAFTA, some from the structure of the industry locally—such as the lack of a unified industry voice and continued reliance on old technologies and production systems—and some from the apparent failure of local jurisdictions to pay sufficient attention to the needs of the apparel industry.

In March of 1993, Southern California Edison began hosting a series of Apparel Industry Roundtable meetings in the garment district with leaders from the industry representing manufacturers, contractors, trade organizations, financial agents, training agencies, and unions. These initial meetings have been devoted to identifying the major concerns and needs of the various components that make up this complex industry. At one meeting, for example, the director of the highly successful Garment Industry Development Corporation (GIDC) of New York was flown in to describe the union-originated GIDC project, which has gained widespread participation and involvement by industry and government in its efforts to support and expand the New York City women's apparel industry.

The roundtable is now investigating the feasibility of borrowing and adapting such GIDC programs as industry-developed training, technology assistance, specialized marketing efforts and export assistance. Fundamental organizational matters—such as the need to unify Southern California's fragmented local industry, address business climate concerns, and gain local and statewide recognition of the apparel industry cluster as a crucial element in any equation for supporting and expanding the regional economy—also need to be addressed.

Entertainment

The entertainment industry is, in many important respects, already a functioning industrial cluster. The Alliance of Motion Picture and Television Producers (AMPTP) is currently undertaking the groundwork necessary to ensure that it remains where it is and to maximize its effectiveness. The AMPTP's own description of the project follows.

The image of the entertainment industry is inextricably linked to Southern California, but there is concern that its economic benefits to the region may not be. Because it combines relatively minimal demands on infrastructure and the environment with large and diverse expenditures and high-wage employment, the industry is aggressively courted by the leadership of many states and countries. While some aspects of the business require convenient accessibility to others in the industry, a significant portion of the "manufacturing" aspect is highly portable.

In the early 1980's California had a near-monopoly on all aspects of the business, although some location production was leaving the state. In the intervening years, studio facilities have developed in New York, New Jersey, North Carolina, Texas, Hawaii, Chicago, Florida, Vancouver and Toronto. Competition for the industry has expanded from location production to back-lot filming and post-production services.

As a truly "global" industry, the entertainment industry exports its products to the world and imports dollars to the Southern California region. According to the AMPTP, the entertainment industry is the second-largest contributor to the U.S. balance of trade—second only to aerospace.

The entertainment industry is poised on the brink of a major technological transition that is closely linked to the computer and telecommunications industries in California. The industry produces software to travel the coming "electronic superhighway," and is a major market for the rapidly developing computer technologies that can change and improve the product. The synergy of these complementary industries is a critical component of California's future.

Despite its economic importance and its long history here, data on the industry's real employment and income impacts on the region are lacking. What studies have been performed have had to rely on secondary data and have focused only on location production, missing large portions of the industry. To remedy this, the Alliance of Motion Picture and Television Producers has retained Monitor Company to conduct an in-depth study, which should be completed in early 1994. The report will have several components:

1. A "map" or discussion of the industry segments, their unique characteristics, and how they interact.
2. Data on employment and spending in the Southern California region.
3. Information on how successful California's competitors have been at attracting the industry to their locales.
4. Recommendations on how to retain and nurture the industry in Southern California.

Point four in the list above will serve as a basis for action on industrial collaboration and flexibility; i.e., on improving the efficiency and scope of the entertainment cluster.

Environmental Technology

According to figures cited in the California Environmental Technology Partnership (CETP) draft strategic plan report (July 16, 1993), the U.S. market for environmental goods and services is \$120 billion in annual revenues. California's environmental industry accounts for 17 percent of the U.S. and 7.5 percent of the world market—a \$20-25 billion market here already. Global growth prospects are strong, but California's high environmental standards make this perhaps the best market of all for sales and employment growth.

Currently, both Arroyo Verdugo subregion and South Bay Cities subregion identify themselves as potential areas for future development and concentration of environmental industry in the SCAG region.¹⁷ The comparative advantages of these two subregions include high-skilled and well-educated labor force, strong engineering research firms, adequate production capacity and available industrial development sites.

However, certain barriers impede the movement of new environmental technologies to market. In partnership with business, academia, community, other non-profit organizations, government agencies can work to lower these barriers and foster an environmental industry cluster in Southern California. California Environmental

¹⁷ Subregion input: Arroyo Verdugo Subregion and South Bay Cities.

Business Opportunities (CEBO)¹⁸ and the city of Pasadena, which is facilitating an environmental technology cluster linking the city's engineering firms with the research facilities of the California Institute of Technology (Caltech) and the Jet Propulsion Laboratory (JPL), recently made the following recommendations:

- Establish a consolidated public/private analytical laboratory in the region capable of implementing all testing protocols for both the E.P.A. and CAL-EPA. Such a site would facilitate industry development of a "real-conditions" model for field demonstrations and testing of new equipment and systems.
- Set up resources centers where businesses can go for help in understanding regulations, meeting permit requirements set up by multiple jurisdictions, and obtaining available technical and financial assistance from both the public and the private sector.
- Encourage close cooperation between public education and training bodies and private corporations to train and educate workers to satisfy the special needs of this emerging industry.
- Coordinate efforts between public agencies and industry to establish standards and to certify and license the new technology.
- Encourage regulators to be more flexible in allowing industry to develop alternative solutions to environmental problems. In other words, set targets in terms of "how much (little)" and "by when" but not "how". An environmental technology cluster should be able to provide alternative methods that can then be evaluated on the basis of cost, export potential and other economic criteria.
- Develop purchasing policies for local governments stressing gradual increases in the percentages of recycled materials used by cities and counties. Such policies would help to create a market base for the environmental technology industry.
- Resolve disputes over environmental issues through *mediation* instead of law suits. This would lower the costs of environmental protection as well as providing relief to an overburdened court system.¹⁹

Advanced Transportation Systems and Technology: Project California.

Launched in the summer of 1992 under the mentorship of the California Council on Science and Technology, Project California is a joint venture that now numbers some fifty investors, including many of California's

¹⁸ California Environmental Business Opportunities, "1992-1993 Highlights in Brief."

¹⁹ Also see the Strategy Chapter, "Decision Making, Consensus Building, and Dispute Resolution."

biggest companies and agencies.²⁰ Its mission is to create high value-added, long-term job opportunities in the advanced transportation industry for residents of the state of California.

The initial stage of Project California, which occupied about one year, was to identify and prioritize those advanced transportation technologies that offer maximum potential for California job creation. Secondary criteria were environmental impact and potential contribution to improving the state's transportation infrastructure.

Phase one identified six major technology groupings containing over 700 individual technologies in 24 distinct businesses. A detailed market assessment was then conducted for each of the 24 businesses, including detailed descriptions of current market conditions and forecasts of demand prospects over the next 20 years. Simultaneously, the Project team and their consultants evaluated the likelihood that California could serve as home base for a world-class, competitive cluster of firms using the competitive advantage model developed by Professor Michael Porter of Harvard discussed earlier in this chapter.

The transportation technologies that survived this rigorous process are the following:

- Electric vehicles (CALSTART)²¹.
- Intelligent vehicle highway systems (IVHS).
- "Information Transportation" (advanced telecommunications).
- Command, control, and communications systems for public transit.
- Research and development in the areas of *Maglev* (magnetic levitation) trains and *fuel cells*.

CALSTART is the most advanced of these initiatives. It is a non-profit consortium of more than 40 public and private entities developing a California-based hi-tech low-pollution form of transportation. In Southern California, CALSTART is the cornerstone of the defense conversion process. The consortium, which includes aerospace companies and electric utilities along with environmental groups, labor unions and research institutions, will apply defense/aerospace engineering and production expertise to a number of products and services revolving around electric vehicles. A prototype electric passenger car has already been built ("Showcase Electric Vehicle Project") and projects involving an electric bus/mass transit program and an electric vehicle infrastructure system are on the drawing boards. [discuss CALSTART's emphasis on electric vehicle components]

Project California is now in the process of developing specific action agendas in each of these areas, accompanied by a human resources action agenda featuring an Advanced Transportation Training Program. Project California estimates that these activities could generate 200,000 direct manufacturing jobs in California by the year 2000.

Project California will spawn a number of industrial clusters. Southern California is in many ways uniquely positioned to house those clusters. A strategy for doing so, which we will call "Project Southern California" is outlined below.

²⁰ Among them are: Hughes Aircraft Co., Bechtel Civil Inc., Aerojet General, Allied Signal Aerospace, the Automobile Club of Southern California, So. Calif Edison Co., So. Calif Gas Co., PG&E, Pacific Bell, Los Angeles County Transportation Commission, Ford Motor Corp, BankAmerica Corp. and the California Employment Training Panel.
Subregion input: Arroyo Verdugo, South bay Cities Association.

²¹ Subregion input: Arroyo Verdugo Subregion, South Bay Cities Association.

**Project Southern California: Linking Employment Needs
with Transportation Requirements in the SCAG Region**

A *Project Southern California* will be designed to carry forward the initiatives of Project California on Advanced Transportation Systems (ATS). The campaign will be to maximize the "capture" of Project California industry clusters for the SCAG region. This makes sense from a number of different standpoints.

First, Southern California firms are preeminent in the production of many of the goods and services an ATS sector will require: transportation equipment, guidance systems, metals and plastics, command and control systems, and sophisticated electronics developed for defense. The design and engineering skills to support these products and technologies are also here, as are the production and delivery infrastructure and basic research capabilities.

Second, we have one of the largest (if not the largest) and most diversified markets for transportation products and services in the world. If ever there were a region and a set of industrial clusters that went hand in hand, Southern California and advanced transportation systems are it.

Third, the region faces mandates from both the federal and the state level not only to clean up our mobile source emissions, but to do it within a defined time frame using specified types of advanced transportation equipment; e.g., electric and clean-fuel vehicles.

Among the tasks that will need to be tackled by the RESC using the methodology defined by Project California are:

- To expand and elaborate CALSTART—From a "2 percent of fleet" environmental requirement to a world-class industry with components production and assembly operations here in So. Cal.
- To devise a strategy to secure the lion's share of basic research under Project California. A research center on advanced transportation systems and technology should be located in the region. This venture would be part of the economic foundations agenda, to be undertaken by the RESC in conjunction with, for example, Caltech, JPL, Cal Poly Pomona, UCLA, USC, Caltrans(?), transportation industry institutes, and leading industrial engineering and design firms.
- To coordinate employment training with Project California, the State Employment Training Panel, and local employers in the ATS industry for conversion of the labor force base.
- To secure for Southern California the telecommunications "Free Zone" (i.e., regulation-free) proposed by Project Calif. Collaborate on this with entertainment cluster.
- To develop a market for ATS products and services, with demand based in part on changes in the region's transportation system recommended in the RCP *Regional Mobility* chapter (Chapter 4). These recommendations, which are discussed in detail in Chapter 4 under the heading "INNOVATIVE PROJECT SERIES" are outlined below.

The project involves addition of a third tier, dubbed SST (for "Smart Shuttle Transit") to the region's existing two-tier transit system, which consists of intra-regional rail (Metrolink) and inter-urban bus service. The new tier would be made up of intra-urban shared taxis, jitneys, shuttle vans, etc. that would be privately owned and demand-driven, designed to provide fast, frequent service to connect with the other two tiers as well as to provide short haul, door-to-door service.

The potential mobility benefits of a community-based SST network include significant additional mode shifts for both home-to-work and non-home-to-work travel and technological spillover benefits resulting from an effective enhancement of existing freeway and arterial capacity. For the regional economy, implementing such a system would provide a large and ready market for the products and services of Project Southern California. It would also be likely to result in a huge saving to the taxpayer by reducing the overall transit system's dependence on subsidized fares.

Economies of scale made possible by production for the local market would be an important comparative advantage for the region's businesses in competing for markets outside Southern California. Employment generation and entrepreneurial opportunities would be substantial, both in the production and in the subsequent operation of the system—as individual vehicle or fleet owners, drivers, licensed operators of support activities (e.g., inspection and maintenance), parts suppliers, etc.

Very preliminary and conservative calculations made by the modelers of the SST suggest that fleet size could reach 150,000 vehicles over the next 10-15 years and provide 150,000-200,000 new jobs. Part of the work of SCAG's Advanced Transportation Task force and its consultants will be to refine these estimates over time.

Biomedical equipment industry.

The *health care*²² and *biomedical equipment* industries are other likely candidates for clustering. Both are areas in which Southern California is, in many respects, already on the leading edge. And both are markets poised to benefit substantially from the Clinton Administration's health care reform plans. Orange County's *Partnership 2010* has undertaken to assist in the formation of an industry cluster for biomedical equipment production and technology research, as described below.

In Orange County, well-defined and established health care and medical device industry clusters are in the process of linking up with a group of biomedical firms. United, they form a powerful *biomedical industry* cluster in the region which is positioned for accelerated growth, high wage employment, and global market potential.

According to *Partnership 2010*, Orange County is the top-ranking county in the United States for the manufacture of surgical and medical instruments and number two in pharmaceutical preparations. The county is home to a growing biotechnology cluster leveraging technology and research assets available from the University of California, Irvine (UCI) as well as proximity to the established biotechnology cluster in northern San Diego County.

²² Subregion input: Arroyo Verdugo Subregion, North Los Angeles County.

Additionally, many core technologies available in the defense sector of the region have immediate commercial applications in the biomedical industry sector. These include, for example, lasers and photonics, sensors, robotics, microcomponents, and power supplies.

4. STRATEGIES TO PROMOTE REGIONAL COMPETITIVENESS

To accomplish the above, cooperation between the public sector and the private sector will be needed. What initiatives are and can be undertaken to lower the costs of doing business in the SCAG region, secure resources from higher levels of government, and improve the business climate?

- **Local buy-in to a regional economic strategy.**

It is the responsibility of the Southern California Association of Governments (SCAG), in cooperation with regional businesses, to achieve buy-in at the member *city level* to the need for expanding the region's economic base. City management and, most importantly, local elected officials must become active partners in the regional economic strategy for at least two reasons:

1. They have the land-use authority and the power to dispense development incentives.
2. Only through city-level understanding and cooperation will the region be able to prevent narrow fiscal/jurisdictional interests from obstructing a regional approach to the economy. Industrial clusters and economic foundations are inherently multi-jurisdictional: this message must reach below the county and even sub-regional levels.²³

- **Actions at the state level: [progress on California Council on Competitiveness/ADEPT agenda]**

- Workers' compensation reform (est. minimum \$750 million annual saving).²⁴
- Business tax cut package worth \$400-500 million.²⁵
- CEQA reform.
- Strategic plan and red tape task forces.²⁶
- "red teams".²⁷
- Allowing pension funds, including *Cal-PERS*, to invest in infrastructure projects
- The California Economic Development Strategic Planning Act, which creates a 15-member Economic Strategy Panel and requires the Secretary of Trade and Commerce to review economic development strategies for the state

²³Letter from Tom Flavin, President, Business-Government Partnership Consulting Services, Inc. to Mark Pisano, Executive Director, SCAG dated May 18, 1993.

²⁴ Subregion input: San Gabriel Valley Association of Cities, West Riverside Council of Governments.

²⁵ Subregion input: Los Angeles City, San Gabriel Valley Association of Cities.

²⁶ Los Angeles City.

²⁷ Subregion input: San Gabriel Valley Association of Cities.

- **Housing reform**

The Housing chapter of the RCP (Chapter 6) deals with policy issues surrounding *reestablishment of a competitive housing market*, including elimination of government-made distortions.

- **Exploring *market-based approaches* to transportation and environmental improvement**

Market-based methods (as opposed to direct regulation, or command and control) should be implemented wherever feasible to achieve environmental and mobility goals at the lowest possible cost. Examples include the following:

1. Encouraging the South Coast Air Quality Management District to use market-based approaches for achieving air quality goals. The RECLAIM program involving stationary sources of NOx and SOx is the first large-scale test of the substitutability of a market for direct controls.
2. Persuading state and federal officials to remove barriers to market-based water transfers; and
3. Exploring the use of congestion pricing, parking charges, and transit deregulation in the region to minimize the need for transportation investments. SCAG is pursuing these applications via the transportation control measures (TCMs) discussed in the Growth Management and Regional Mobility chapters of the RCP.

- **Streamlining regulations and cutting red tape.²⁸**

The business community recognizes that permit processes usually address legitimate social and environmental goals. Nevertheless, along with market-based approaches, regulatory and permit simplification is needed to reduce the cost of meeting legitimate goals.

Regulatory simplification includes reducing the number of agencies that have jurisdiction over the same action. The ideal, often expressed by frustrated entrepreneurs, is *one-stop permitting*. Even if the one-stop approach proves impracticable in certain instances, the second-best solution—uniformity of requirements among different jurisdictions—should be aggressively pursued at all levels of government. This will require collaborative decision making across geographical and jurisdictional lines.

Directly-affected industry groups and the RESC will produce specific recommendations for avoiding duplication and overlapping of permit authority. Existing regulatory agencies affecting the region will be convened to move toward more cost-effective means of permitting.

Even where there are few layers of bureaucracy involved in the process, streamlining of permitting translates as minimization of the time required to obtain the required permission. The above-mentioned groups should therefore include time minimization techniques in their recommendations to the regulators.

Some examples of local/regional initiatives [expand]:

²⁸ Subregion input: Los Angeles City, San Gabriel Valley Association of Cities, Southeast Los Angeles County, Westside Cities, West Riverside Council of Governments.

- Local government efforts; e.g., Ventura County Council on Economic Vitality, San Gabriel Valley Commerce and Cities Consortium initiative.
 - SCAG's own efforts in the RCP: E.I.R. tiering and TCMs.
 - RAC report recommendations
 - Subcommittee on Land Use and Conformity of RC Standing Committee on Implementation. (See also Chapter 7 (Implementation) of the RCP.
- **Providing infrastructure needed for growth²⁹ on a *cost efficient basis*** -- addressed in Mobility, Water, and Energy chapters of the RCP.

Intensify existing efforts to educate leaders and the public regarding the economic rationale for increased public infrastructure investment. Progress in infrastructure *funding*, however, will require solutions to state and local government fiscal problems in the 1990s. [revise and expand]

• **State and local government fiscal reform**

Many strategies for economic prosperity in Southern California (e.g., education, training, infrastructure, quality of life) are related to state and local government fiscal prospects. In California, local government fiscal prospects are tied directly to state budget decisions.

This fiscal interrelationship, together with the limited range of general revenue sources at the local level, makes it highly likely that fundamental fiscal reform at the state and local level will be required in order to meet the capital investment requirements of the region's economy.

A specialized foundation dealing with fiscal reform is essential to support the region's basic industry clusters. This is an ideal province for public-private sector cooperation. A model which could be adapted to the needs of this region already exists among the Joint Venture: Silicon Valley foundations: the Silicon Valley Council on Tax and Fiscal Policy. A logical first step would be to establish a dialogue.

• **Designing a regional education and training strategy³⁰**

A highly skilled work force is an indispensable component of Southern California's competitiveness strategy. A regional education and training strategy for economic competitiveness needs to include the following:

- Strategies to improve the skills of K-12 graduates.
- Strategies to improve the educational and training opportunities of the "forgotten fifty"—those students who graduate from high school but do not complete a four-year college education.

²⁹ Subregion input: Arroyo Verdugo Subregion, Southeast Los Angeles County, South Bay Cities, West Riverside Council of Governments,

³⁰ Subregion input: Arroyo Verdugo, Los Angeles City, San Gabriel Valley Association of Cities, West Riverside Council of Governments.

- Strategies to strengthen California's higher education system and improve its linkages with the business sector.³¹
- Strategies to train and match labor force skills with future key industry needs.³²

With so many educational reform efforts under way in the region, the role of the Consortium should be to lend expertise and provide support to *existing* groups in their reform efforts, rather than try to re-invent the wheel.

• Promoting foreign trade and investment³³

The RESC supports the concept of free trade between nations. Regional policy with respect to foreign trade and investment should nevertheless seek to ensure that multilateral trade agreements (e.g., NAFTA) provide an adequate "phase in" period for both sides to adjust to the new conditions. Consistency of rules, regulations, and requirements for safety and the environment are examples. Moreover, a trade agreement is *itself* a form of economic transition or conversion; as such, adequate and timely assistance should be provided for both employers and workers whose income stream and/or benefits are significantly impacted.

The Consortium, in concert with the interested parties, will assist in the formation of a specialized economic foundation to support and promote foreign trade activity by businesses in the region, as well as a regional industry cluster involving linked aspects of international trade support services (e.g., goods movement and handling, telecommunications, repair services, etc.) This effort should include seeking the means and supporting regional efforts to maintain and upgrade infrastructure related to international trade.

5. STRATEGIES FOR INVESTMENT IN "COMMUNITIES-IN-NEED"

Communities in need are identified and the dimensions of their problems mapped in the Technical Document accompanying Chapter 7: *Human Resources and Services*. In this chapter we are concerned with the *economic rationale* for focusing attention on communities in need as an essential ingredient of the overall regional economic strategy. Why should investment resources be allocated to such communities? There are three basic reasons:

1. The second goal established in Section I of this chapter—ensuring that economic gains are broadly shared—implies an effort of this sort.
2. Government needs to invest in its own self-interest—in order to protect and enlarge its fiscal base.

³¹ Subregion input: North Los Angeles County, San Gabriel Valley Association of Cities,

³² San Gabriel Valley Association of Cities, West Riverside Council of Governments.

³³ San Gabriel Valley Association of Cities, West Riverside Council of Governments.

3. Businesses in the region will likewise be acting in their own best interests in undertaking investment in communities-in-need. Under a regional approach to the economy, improving conditions in such areas will have to be an integral part of the business development strategies. *The region's image as a prosperous and dynamic place in which to do business will remain tarnished unless economic recovery can be seen to be benefitting all major segments of the population.*

Given that there is sufficient economic rationale for an investment strategy benefitting communities in need, two further questions need to be asked: "Where will the money come from?"; and "How can we ensure that the cost of providing these resources is minimized?"

A number of public and public-private funding sources already exist in the region but may not be used to their fullest extent. Examples are Enterprise Zones, Empowerment Zones, Community Development Banks, Community Redevelopment Areas, and Community Development Corporations.

We need to examine what these programs are really doing for the economy. The aim should not be temporary relief (however desperately that may be needed) but rather to enable such communities to begin moving toward economic self-sufficiency. The goal of self-sufficiency is explored in more detail in the Human Resources chapter of this Plan.

Innovative, non-traditional sources of funds include the following:

- R.L.A. (describe approach) — but needs to be generalized to region.
- A regional *Enterprise Trust Fund*

As recommended in the 2000 Regional Partnership's *Housing Task Force Action Plan*, an innovative financial funding mechanism—the Enterprise Trust Fund—could be used to accumulate resources for rebuilding our infrastructure and revitalizing our inner cities.

The essence of the proposal is that an additional fee (a premium) would be placed on specially packaged mortgages that are sold to investors with the attraction that only the interest above the rate of inflation would be taxable. The pool of premium money—the Enterprise Trust Fund—would then be used to finance capital investments and services needed to improve the capacity of communities-in-need to solve their economic problems.

As an example, if Southern California were able to allocate \$3 billion from the Fund to projects in this area, an estimated 66,000 jobs would be created and nearly \$600 million in federal tax receipts would be generated in the first year. The second year would generate an estimated \$530 million in tax revenues, more than offsetting a \$230 million loss to the Treasury from "inflation-proofing" the taxable yield on the securities in the preceding year.

The program would start with so-called "Negotiated Community Investment Strategies." Local governments would decide—with input from community-based organizations and business, private investors and universities—on a strategy for achieving whatever is necessary for the community's economic revitalization. This might range from job-creating development to education and training needed to upgrade skills. It could include day care, improved security or other forms of investment needed to foster economic development.

Next in the process would be the U.S. Department of Housing and Urban Development (HUD), which would approve the community strategy. HUD would then certify sales of pools of mortgages with the accompanying tax advantage. Private investors, government agencies and nonprofit organizations would execute the strategy. Trust funds, while administered by a bank or similar supervised entity, would be spent in accordance with the provisions of the specific strategy rather than the traditional requirements of banking regulations.

The advantages of the proposed Enterprise Trust Fund include:

- By relying on the preferential tax treatment of the securities, it would raise risk capital through the *market*, not via the taxation and appropriation process. Community investments financed in this manner would generate federal and state tax revenues, contributing to reduction of government budget deficits.
- The community would develop its own strategies with the knowledge that the risk capital would be available; that banking regulations or traditional credit risk calculations would not prevent the financing.
- The program would be implemented by the private sector. Local government and the community-in-need would determine the need and the private sector would work to fulfill it. There would be no need for project funds to be passed down from the federal to the state to the local government and then to the community.
- Community partnership models in other regions.

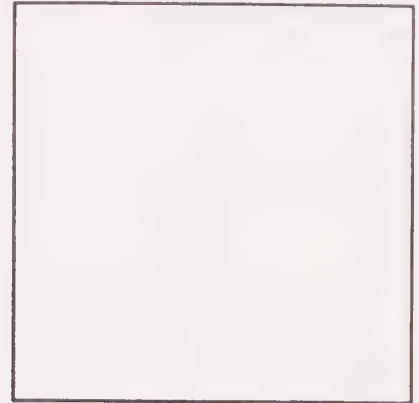
Community partnership efforts to attack the social problems associated with poverty in urban areas include the Atlanta Project in Georgia, an initiative of former President Jimmy Carter and The Carter Center, Inc., and the Austin Project in Texas, which is chaired by Walt W. Rostow. The investment plans put forth by each of these projects aim to reverse the decline of disadvantaged neighborhoods and ensure the economic and social protection of residents. Both projects promote the investment of scarce resources in a limited number of areas to meet specific and stated objectives. The strategies for implementation of the objectives are based on the principles of:

- continuity of community action from pre-natal care to entrance into the work force;
- priority for preventive investment; and
- partnerships and linkages among all elements of the community

Current plans and budget projections include:

Austin - The First Phase Plan calls for the creation of a Children's Fund -- with support from the federal, state, county and city governments, and foundations and corporations -- totalling \$12 million in the first year (1993).

Atlanta - The five-year budget (1992-1997) includes \$20 million in cash and \$12.8 million in in-kind contributions, with additional funds raised for special needs (for example, \$4.8 million has been pledged for documentation, training and evaluation of the project).



GROWTH MANAGEMENT

- Introduction
- Overview of Growth
- Growth-Related Issues
- Growth Management Policies
- The Regional Outlook beyond 2010

A. INTRODUCTION

This chapter addresses the complex issues related to growth and land consumption within the framework of the Regional Comprehensive Plan (RCP).

The region is faced with the monumental task of dealing with the consequences of rapid growth in an era of dwindling physical, natural, and economic resources. Change and evolution will come at a price, and unless their consequences are foreseen and dealt with, the cost of growth could be too high for this region to absorb. Growth at any cost can result in a lower quality of life for all. Managed growth, on the other hand, could be an energizing force by providing an environment that attracts business and capital investments to the region, open opportunities for jobs, housing, and education, help attain mobility and air quality goals, and maintain quality of life.

The purpose of the Growth Management chapter is to suggest guiding principles for growth and development that are supportive of the strategic goals of the RCP. These overall goals are to re-invigorate the region's economy, avoid social and economic inequities and the geographical dislocation of communities, and to maintain the region's quality of life. The Growth Management goals are presented in Table 3-1.

Table 3-1
Growth Management Goals

RCP Goals	Standard of Living	Quality of Life	Equity
GME Goals	<ul style="list-style-type: none"> • Develop Urban Forms that: <ul style="list-style-type: none"> ○ Minimize public and private development costs ○ Enable individuals to spend less income on housing costs ○ Enable firms to be more competitive 	<ul style="list-style-type: none"> • Develop Urban Forms that: <ul style="list-style-type: none"> ○ Preserve open space and natural resources ○ Are aesthetically pleasing and preserve the character of communities • Attain mobility and clean air goals 	<ul style="list-style-type: none"> • Develop urban forms that: <ul style="list-style-type: none"> ○ Avoid economic and social polarization • Accommodate a diversity of life styles

B. OVERVIEW OF GROWTH

1. REGIONAL TRENDS

During the next two decades, Southern California will continue to experience population growth and development but, along with growth, the region's features will undergo extensive transformations. In 2010 it is expected that there will be 20.5 million people living here and 9.7 million jobs available for workers.

The ethnic makeup of this population will continue to evolve toward higher proportions of people of Hispanic and Asian descent. Whereas, in the past, migration played the dominant role in population increase, births will constitute the major portion of future growth. The younger and older segments of the population will grow rapidly, and workers will have to support a larger share of the total population.

Table 3-2
Median Age of the U.S. and the SCAG Region, 1990 and 2010

	1990	2010
U.S.	32.9	37.4
SCAG	30.6	32.3

Population growth and diversity are a source of economic and cultural vitality, as well as social challenges. Inter-group tensions, unequal access to services, unequal access to employment and educational opportunities, social and geographical segregation can also accompany rapid growth and diversity. Chapter 7 identifies desirable solutions to existing and potential social problems which come as a consequence of growth dynamics.

POPULATION, EMPLOYMENT, AND HOUSING GROWTH SCAG REGION 1970-2010

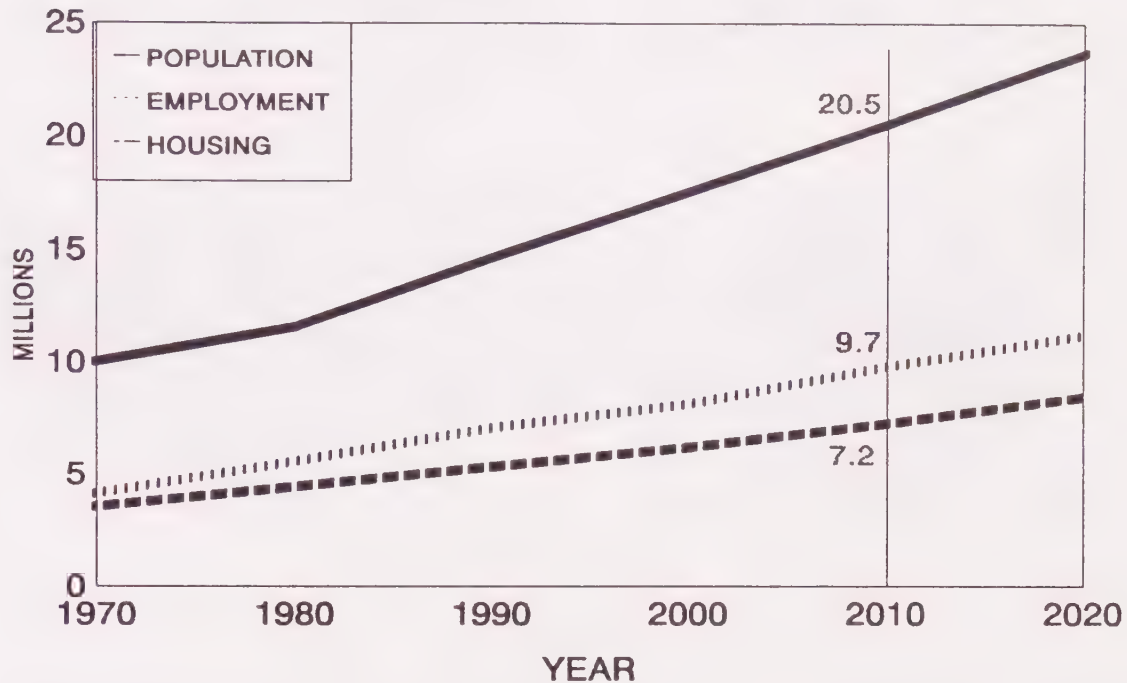


FIGURE 3-1

Although the number of people per household will probably remain high, the same amount of dwelling units will have to be constructed as in the past decade, on the average, every year to adequately house the growing population. The ethnic and racial mix of households will reflect the population diversity and underlie shifting demands for housing. Chapter 6 attempts to provide answers to the fundamental question: How to bring the housing costs and decent shelter within the reach of more households as the region develops into the next century?.

The sweeping demographic changes that are already underway will also affect the region's labor force. A large proportion of the new residents and workers will be recent immigrants or children of recent immigrants. The rising skills requirements of new jobs will probably not match the capacities of workers across all ethnic groups. This could depress the average income and the wealth generated, thus lowering the quality of life in the region.¹ Long-term economic forecasts for the region, and strategies to attain real income growth and ensure that economic gains are broadly shared are fully analyzed in Chapter 2. Strategies for improving the quality of the region's work force are detailed in Chapter 7.

¹Several years ago SCAG undertook an analysis of social disparities (with a Ford Foundation grant distributed by the National Association of Regional Councils). The study revealed that polarization of jobs by skill and wage is intensifying, and that traditional blue collar jobs are being replaced by mid-level jobs requiring different verbal, computational and communication skills.

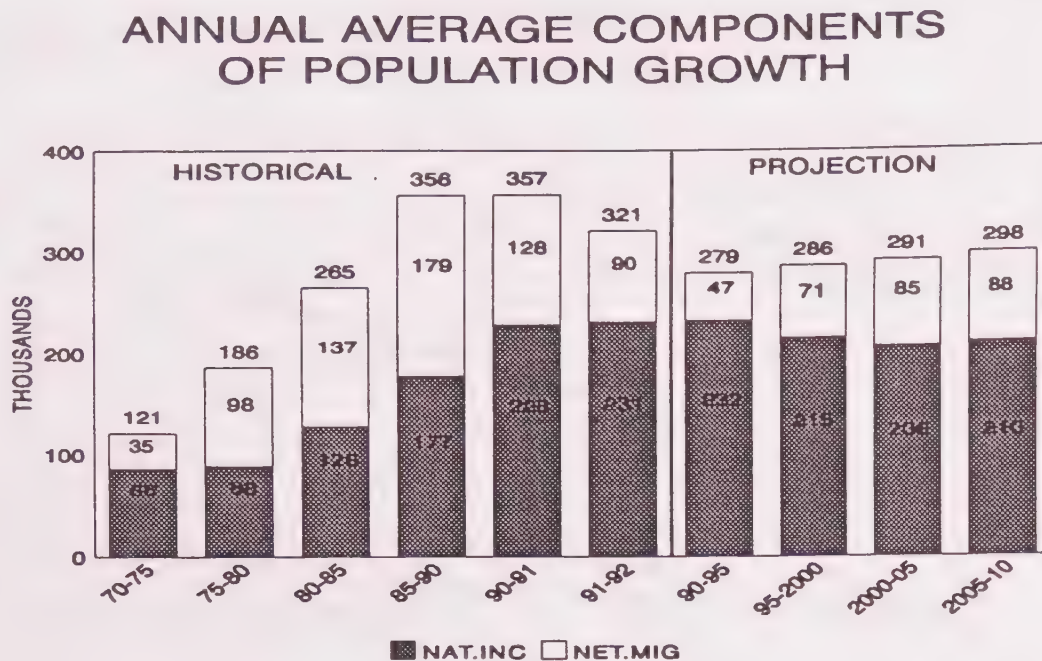


FIGURE 3-2

DISTRIBUTION OF POPULATION BY ETHNICITY SCAG REGION 1990 & 2010

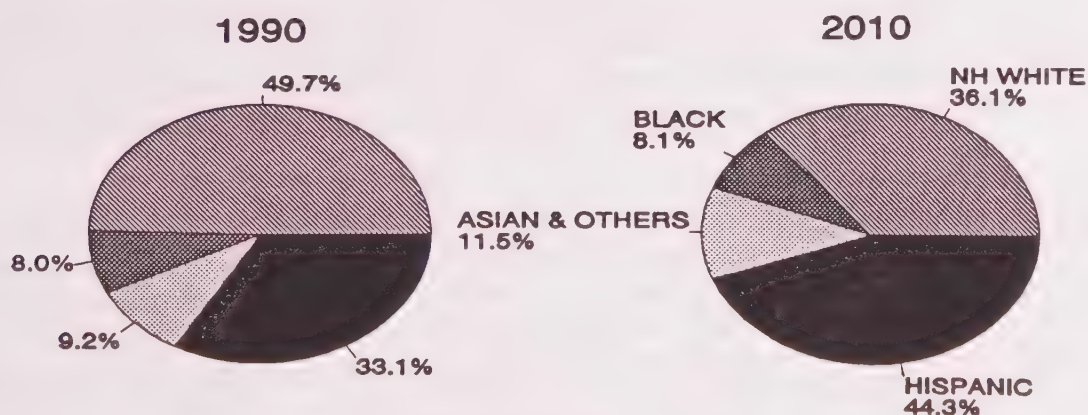


FIGURE 3-3

DISTRIBUTION OF EMPLOYMENT BY SECTOR SCAG REGION 1990 & 2010

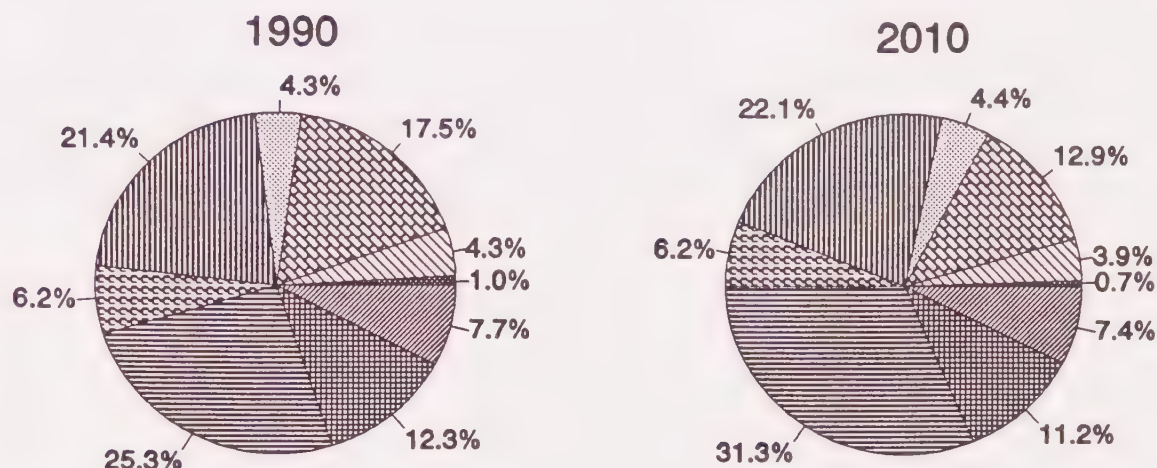


FIGURE 3-4

	Agriculture & Mining		Construction		Manufacturing
	Transportation		Trade		Finance
	Services		Government		Self-employed

2. SUBREGIONAL DISTRIBUTIONS OF GROWTH

The regional forecasts were disaggregated to counties, subregions, cities, and smaller geographies through a bottom-up, inter-active process in which subregional organizations played a crucial role by providing information and technical input.

The DRAM/EMPAL model, was used to produce a small-area forecast that allocates growth to different areas based on their relative attractiveness. This distribution contained no adjustments for local zoning or growth constraints. Additionally, staff met with the Planning Director or their representative for each of the cities to arrive at a city-level forecast that represents not only the best estimate of future growth, but also one which reflects local conditions. The resulting distributions of population, housing, and employment to subregions and cities constitute a forecasts that public entities are currently anticipating without further policy intervention. This base case forecast was used for modeling of travel characteristics and emissions of air pollutants.

Two alternative distributions were developed for transportation modeling and the Environmental Impact Report (EIR) analysis. One alternative reflects the job/housing balance distributions of the 1989 Growth

Management Plan (GMP), with updated regional totals. The second alternative concentrates growth around rail and transit stations.

Figures 3-5 and 3-6 show the rate of growth in population, housing and employment for each subregion, between 1990 and 2000, and between 2000 and 2010. They indicate that the fastest growth rates will take place in the outlying areas of the region, namely North Los Angeles County and the Inland Empire. Future development is expected to occur at fairly low-densities as depicted in Figures 3-7 and 3-8.

Preliminary modeling results based on the base case socioeconomic distributions, indicate that, in some outlying areas of the region, forecast growth could severely impact the transportation infrastructure, leading to excessive congestion. The forecast distributions will be finalized after discussion of modeling results, analysis of EIR alternatives, and resolution of growth related issues by technical and policy committees. The forecast adopted by the Regional Council will underlie the development of the different components of the RCP.

TABLE 3-3. SCAG DRAFT BASE FORECAST FOR POPULATION, HOUSING, AND EMPLOYMENT

SUBREGION	1990			2000			2010		
	POP	HSG	EMP	POP	HSG	EMP	POP	HSG	EMP
NORTH LA	283,000	99,000	88,000	612,000	191,000	183,000	961,000	306,000	262,000
LA CITY	3,570,000	1,330,000	1,954,000	3,973,000	1,438,000	2,035,000	4,463,000	1,602,000	2,163,000
ARROYO VERDUGO	516,000	209,000	320,000	565,000	224,000	371,000	633,000	248,000	439,000
SAN GABRIEL VALLEY	1,425,000	448,000	583,000	1,543,000	475,000	660,000	1,707,000	524,000	768,000
WEST SIDE SUMMIT	221,000	117,000	231,000	240,000	124,000	246,000	260,000	131,000	260,000
SOUTH BAY CITIES	792,000	302,000	443,000	848,000	317,000	497,000	910,000	336,000	586,000
SELAC:S.E. LA	1,913,000	604,000	923,000	2,031,000	635,000	984,000	2,158,000	669,000	1,097,000
ORANGE COUNTY	2,411,000	875,000	1,301,000	2,868,000	1,000,000	1,636,000	3,108,000	1,079,000	1,916,000
WRCOG:W. RIV.	912,000	337,000	261,000	1,468,000	507,000	391,000	1,988,000	704,000	582,000
COACHELLA	215,000	126,000	87,000	330,000	167,000	126,000	497,000	249,000	163,000
RIV. REMAINDER	44,000	21,000	9,000	50,000	24,000	6,000	63,000	30,000	12,000
VCOG*	697,000	238,000	297,000	817,000	287,000	356,000	911,000	335,000	431,000
VCOG: SANTA CLARITA	111,000	41,000	45,000	151,000	55,000	57,000	188,000	67,000	63,000
SAN BERNARDINO	1,418,000	542,000	488,000	1,909,000	696,000	648,000	2,434,000	898,000	868,000
IMPERIAL	109,000	37,000	46,000	166,000	50,000	57,000	226,000	70,000	70,000
SCAG TOTAL	14,637,000	5,328,000	7,076,000	17,572,000	6,189,000	8,254,000	20,507,000	7,249,000	9,679,000

Note: * VCOG includes Ventura County and three cities in LA County.

SCAG Growth Management Element, December 1993.

Source: SCAG Draft Base Forecast, 1993.

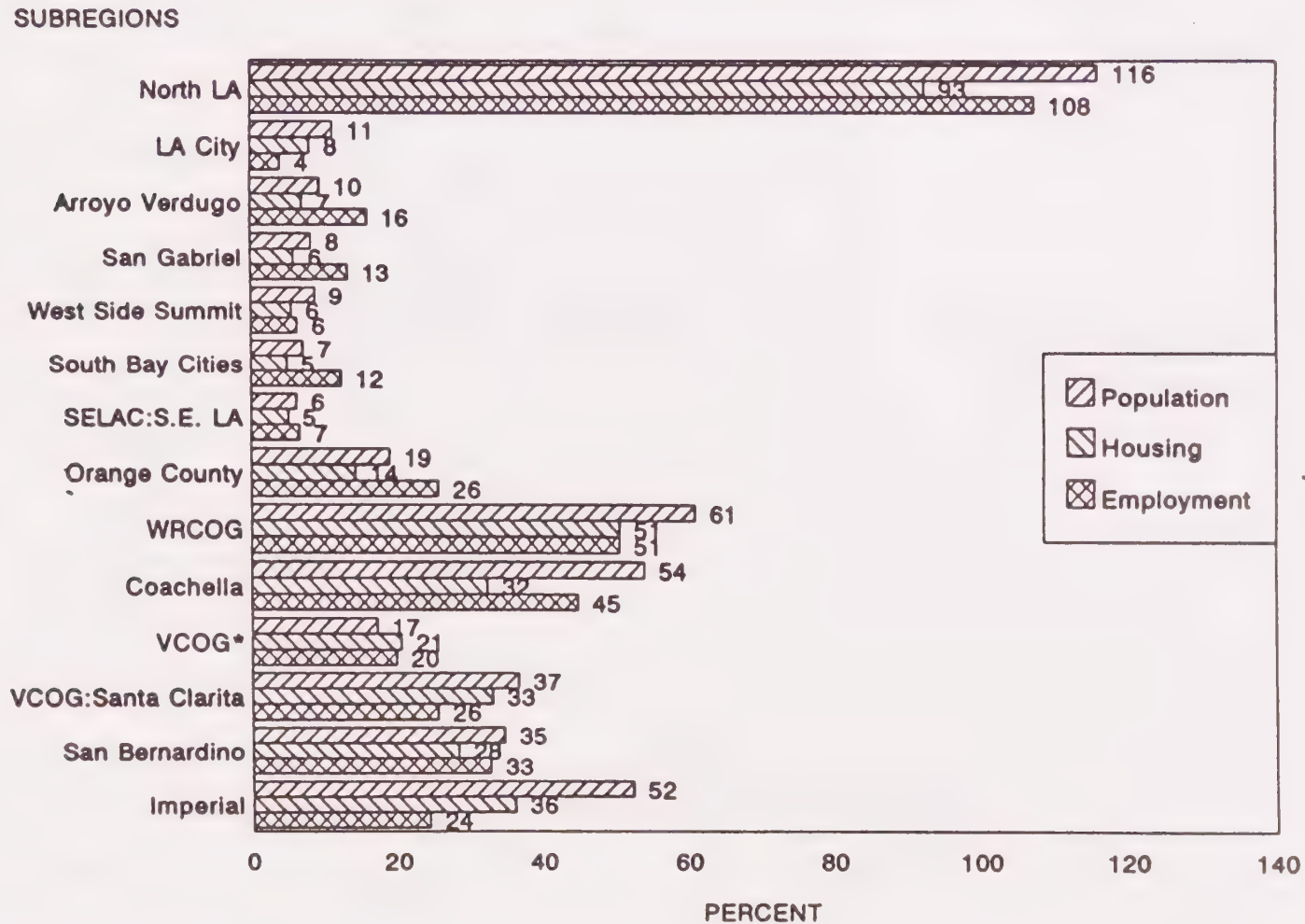
TABLE 3-4. SCAG DRAFT BASE FORECAST FOR POPULATION, HOUSING, AND EMPLOYMENT

COUNTY	1990			2000			2010		
	POP	HSG	EMP	POP	HSG	EMP	POP	HSG	EMP
LOS ANGELES	8,860,000	3,163,000	4,610,000	9,996,000	3,469,000	5,059,000	11,317,000	3,896,000	5,666,000
ORANGE	2,411,000	875,000	1,301,000	2,868,000	1,000,000	1,636,000	3,108,000	1,079,000	1,916,000
RIVERSIDE	1,170,000	484,000	356,000	1,848,000	699,000	524,000	2,548,000	983,000	757,000
SAN BERNARDINO	1,418,000	542,000	488,000	1,909,000	696,000	648,000	2,434,000	898,000	868,000
VENTURA	669,000	228,000	275,000	785,000	276,000	331,000	874,000	322,000	401,000
IMPERIAL	109,000	37,000	46,000	166,000	50,000	57,000	226,000	70,000	70,000
SCAG TOTAL	14,637,000	5,328,000	7,076,338	17,572,000	6,189,000	8,254,000	20,507,000	7,249,000	9,679,000

Note: SCAG Draft Growth Management Element, December 1993

Source: SCAG, Draft Base Forecast, 1993

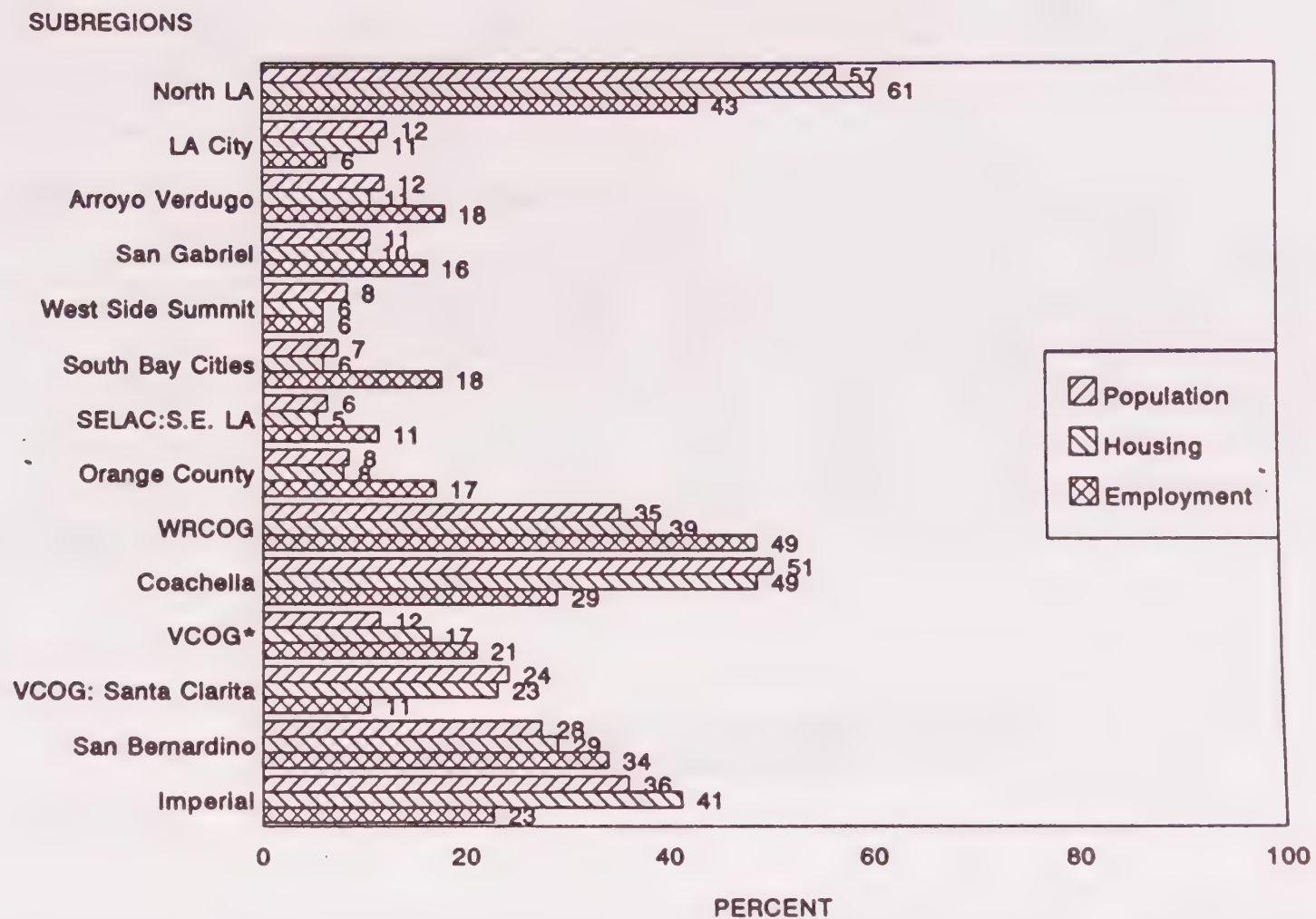
% CHANGE OF POPULATION, HOUSING, AND EMPLOYMENT, 1990-2000



Note: VCOG* includes Ventura County and three cities in LA County

FIGURE 3-5

% CHANGE OF POPULATION, HOUSING, AND EMPLOYMENT, 2000-2010



Note: VCOG* includes Ventura County and three cities in LA County

FIGURE 3-6

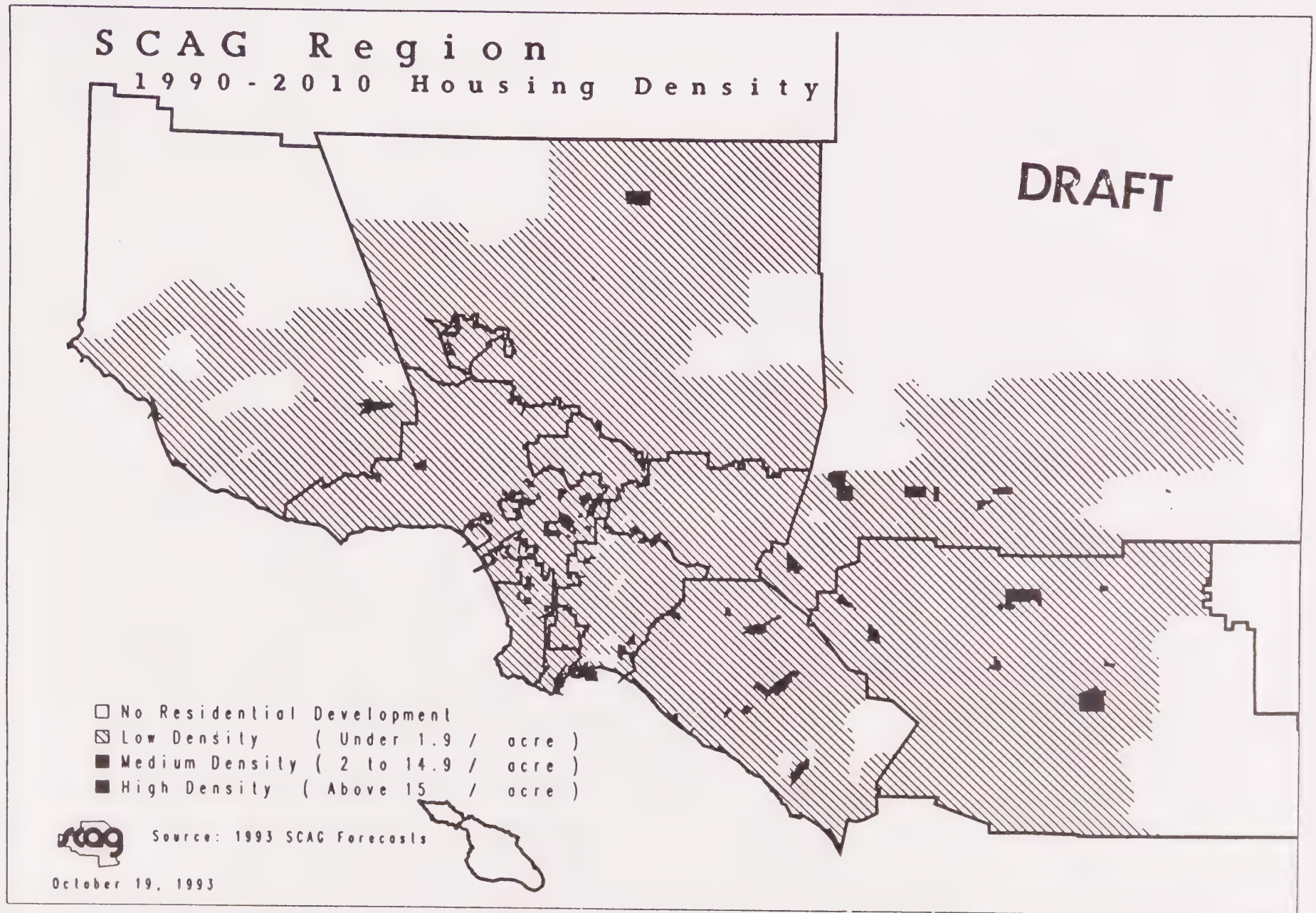


Figure 3 - 7

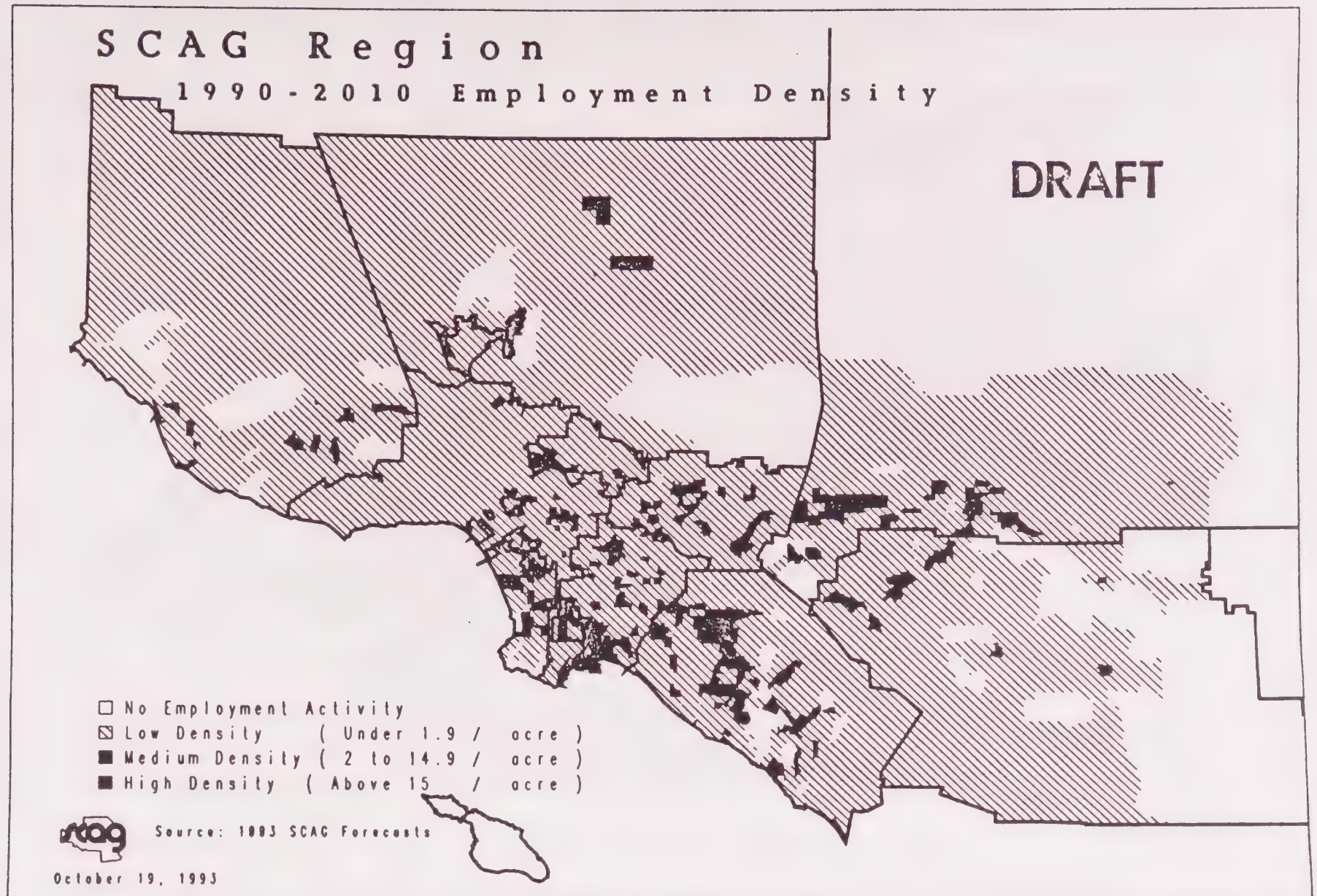


Figure 3 - 8

C. GROWTH-RELATED ISSUES

As this region continues to expand a number of issues are likely to emerge and/or intensify. Growth and growth distributions, as well as changing demographic and economic characteristics, will impact all aspects of life in the region.

This chapter focusses on the implications of growth distributions on urban form, mobility, air quality, and open space. It also addresses the related issues of economic development, socioeconomic equity, fiscalization, and policy implementation.

1. URBAN FORM, MOBILITY, AND AIR QUALITY

Land-use and density patterns influence to a large extent the way people choose to travel, the distances they must cover, and the time they spend to reach their destination. This, in turn, determines the amount of congestion on the roadways, the amount of fuel consumed, and consequent air pollution.

The 1991 federal Intermodal Surface Transportation Efficiency Act (ISTEA) stresses the integration of land-use policies and transportation programs. Land-use measures and growth management strategies to reduce congestion, vehicle trips, and Vehicle Miles Traveled (VMT), are important requirements to meet the California air quality standards.

a. Approaches to Urban Form Analysis

1. Large-Scale/Regional Urban Form

The large-scale urban form approach implies the implementation of a land use policy at the regional level. The 1989 GMP job/housing balance policy is an example. The job/housing balance policy proposed in the 1989 GMP was included in the 1989 Regional Mobility Plan (RMP) as a strategy to regain 1984 levels of mobility. It was also included as a Transportation Control Measure (TCM) in the Air Quality Plan (AQMP Measure 17). The aim of this land-use strategy was to relieve the pressures of population and job-growth distributions on the transportation system by achieving more balanced future developments. Job/housing balance accounted for 8 percent reduction in congestion and 33 percent of emission reductions resulting from TCM in the AQMP.

The position that job/housing balance would occur, over time, without regional policy intervention, is partially supported by recent data. The base case 2010 distributions imply job/housing balance ratios that are a marked improvement over the job/housing ratios in the 1989 GMP. Analytical subregions which become more balanced over time, or do not deteriorate, will comprise 60 percent of the total regional housing and employment. On the other hand, some subregions will experience greater imbalance and will comprise 40 percent of the total regional housing and employment.

Transportation and emission modeling results show that achieving job/housing balance ratios equivalent to the 1989 GMP in subregions moving to greater imbalance helps achieve a 2.65 percent reduction in VMT traveled during morning rush hours. Compared to the base-case forecast, this scenario also leads to a 19.5 percent reduction in hours of delay, a 9.21 percent increase in speed, and a reduction of Reactive Organic Gases (ROG) of more than 1 ton per day. The implications of this model run will be evaluated in the EIR.

based on the premise that local jurisdictions have the primary authority over land use decisions. The development of public-private partnerships is essential to bring about the desirable land use changes which will help achieve the goals of better mobility and air quality. This is consistent with the RCP strategy which advocates a self-regulating approach instead of "command and control", and which recognizes the mutual dependence of the public and private sectors in bringing about desired changes.

b. Open Space and Conservation

The preservation of open space and conservation of natural resources are vital to the health and safety of individuals. They also contribute to the maintenance of the quality of life, to enrichment of urban form, and to the regional economic balance.

The need to preserve and conserve forests, agricultural preserves, and flood plains, to protect endangered species, particular habitats and wetlands, to accommodate hazard zones, and to provide recreational areas, is discussed in Chapter 9. The control of development in areas susceptible to natural hazards helps prevent catastrophic losses of human lives, property and resources. All too often, natural disasters strike in areas not meant for safe human habitat. Restriction of development or the imposition of strict design criteria in designated areas, can curtail the psychological and fiscal burdens of fighting disasters and coping with their aftermath. In the same vein, zoning practices which safeguard historical, cultural, and archeological sites contribute to the preservation of open space and the enrichment of human existence.

However, open space policies, if not properly designed, could lead to land- and development-cost increases, and potentially conflict with efficient attainment of housing and economic development goals. The trade-offs between conservation of open space and the other growth management goals must be carefully weighed.

Subregional Input

The paradox between the need to accommodate growth and the necessity of preserving open space can be eliminated with proactive planning. The Urban Development Guidelines, Support of Agriculture, Permanent Preservation Programs, Development Requirements and Greenbelt Program approved by the Ventura County Association of Governments (VCOG) subregion are examples of local policies and strategies to preserve open space, protect community identity and mitigate impacts of growth.⁵ Disincentives to growth in areas designated for preservation is another policy to promote safety and conserve open space⁶.

Linkages and Relationships with Other RCP Components

The Open Space chapter stresses the importance of balancing the need for additional development and the need to protect the region's natural ecosystems and open space resources. Land-use decisions to accommodate growth should be weighed for their potential impacts on natural resources. Multiple-habitat planning, better cooperation between land owners, local jurisdictions, agencies responsible for land management, and better cooperation among subregions can minimize the negative effects on the environment. This would have the dual effect of reducing the costs of ecosystem management as well as development costs.

⁵Goals and policies of the San Gabriel Valley Subregional Plan and proposed policies of Los Angeles City and the IVAG subregions support this position.

⁶Proposed by Los Angeles City Subregion.

2. ECONOMIC DEVELOPMENT AND SOCIAL DISPARITY

Forces of the global economy, technologic changes, immigration, neighborhood segregation, and growth itself, among other factors, are resulting in disparities in education, job, and housing opportunity. The same forces contribute to geographic polarization by income. Social polarization and disparity tend to reinforce each other.

Providing appropriate jobs close to major population concentration and affordable housing close to major employment opportunities can help address the job and housing opportunity disparities.

As jobs requiring improved verbal, computational, and communication skills replace traditional blue-collar jobs, education and training, or retraining, will be essential in accomplishing this transition in the labor force. The training challenge is magnified by the trend towards smaller companies which are often not able to arrange for, or provide, the training themselves. Policies in Chapter 2 address these challenges.

Chapter 6 deals with the issue of providing diverse types of housing for people of differing ages, for differing incomes and for different family size or make-up. If housing production can not meet the demands indicated in the forecast, then overcrowding in existing older communities is likely to occur. High, or escalating, housing costs could be detrimental to the maintenance of the region's competitive edge. This could result in growth distributions different from the forecast. Preservation, rehabilitation and code enforcement are related housing issues.

Achieving "sustainable communities" implies that economic and housing opportunities are available in all parts of the region. Revitalization of lower-income areas—the areas "left behind"—is a critical and growing challenge for the region. These concerns are addressed in Chapter 7.

Subregional Input

Tools to contain housing and infrastructure costs to maintain economic competitiveness are suggested by the Los Angeles City subregion. They include locating new housing development where infrastructure capacity already exists, particularly through mixed-use development at transit locations; revitalizing dilapidated areas; capitalizing on community assets such as historic resources, strong community organization and multi-cultural cooperation; promoting infill development appropriate to each neighborhood; rehabilitating existing structures; promoting home ownership opportunities; making adaptive reuses of closed plants, surplus school sites and vacant buildings⁷; establishing priorities for business assistance and tax free financing in areas where job development is needed⁸; providing opportunities for households of all income levels⁹; streamlining the permitting process¹⁰.

Several subregions have suggested ways to meet the challenge of achieving "sustainable communities". Their

⁷Consistent with goals and policies of the San Gabriel Valley subregional plan, and SELAC comments.

⁸WRCOG recommendation.

⁹Input from Arroyo Verdugo.

¹⁰IVAG recommendations include the coordination of permitting process.

policies call for the provision of the proper mix of economic and housing opportunities, and assuring that health, quality education, recreation, welfare, protection, commercial, religious, and non-profit services are available to all communities, including lower income areas.¹¹

Linkages and Relationships with Other Plan Components

To remain economically competitive, the region must maintain a well trained work force, an adequate infrastructure to move people, goods and information quickly and at competitive cost, a competitive quality of life, and a competitive business climate.

The development of locally desirable urban forms can assist in the achievement of economic competitiveness and the attainment of the RCP goals. They are essential for implementation of human resources development policies. There is also an intricate link between proper land use planning and the provision of adequate and affordable housing.

Local land-use actions, such as proper zoning, density bonuses, mixed-use, balanced growth and the proper mix of housing opportunities by building type and income level, phasing of growth and infrastructure, streamlining of the permitting process (for land use, construction and operations), can help bring down the cost of housing and development, and help resolve the issues raised in the Housing chapter. This would also help improve the region's quality of life, retain trained and skilled workers in the region, and therefore, help the region to regain its economic competitive edge.

Making employment, entertainment and tourist centers more accessible, through the coordination of land use and transportation facilities, reinforce economic development policies for the region.

Whereas it is expected that each jurisdiction and/or subregion will formulate its own approach to land use issues, the decisions of one jurisdiction also affects surrounding ones. Successful implementation of desirable land-use changes will require decision-making through consensus building and dispute resolution as proposed in the RCP's Strategy chapter.

Consensus building and resolution of disputes about land-use is also advantageous from an economic development perspective. Developers go where they are welcome. Proper zoning and land-use designations within and across jurisdictions can facilitate the formation of economic clusters, the physical movement of goods, and the generation of jobs in the types of industries which will stimulate the economy and help achieve economic goals for the region.

The appropriate zoning designations can facilitate the provision of recreational, educational, and training facilities and ensure their accessibility to all residents. These actions would also enable communities in need to become sustainable, as advocated in the Human Resources and Services chapter.

3. FISCAL ISSUES AND IMPLEMENTATION

In an era of financial difficulties and fiscal constraints, competition among jurisdictions to attract revenue-

¹¹This strategy to achieve sustainable communities is advocated in subregional comments and plans of IVAG, Arroyo Verdugo, WRCOG, Los Angeles City, San Gabriel Valley Cities Association, and SELAC.

generating development becomes more intense. This practice tends to exacerbate disparities between communities. Some communities, which are at a competitive disadvantage and financially strapped, find it increasingly difficult to provide their residents with the needed infrastructure and services. The same communities are often impacted, and shouldering more than their fair share of regional growth.

The debate toward the resolution of the various issues related to growth distribution and urban form must consider the issue of equitable distribution of development cost among communities, and between the private and public sector. Each community should have an opportunity to participate in economic development, and to generate a sound fiscal base to provide for the needs of its residents. The degree to which this is realized will determine the economic strength and vitality of the region, the establishment of sustainable communities, and the maintenance of the regional quality of life. The Finance chapter discusses ways to make this possible.

The implications of these fiscal issues, an implementation strategy to overcome disparities, and the design of an appropriate monitoring program, need to be identified and debated by subregions. The discussion of issues, and final resolutions, rests with local governments. The method for distributing costs for installation of infrastructure or services in a fiscally responsible manner are critical, and require full involvement of local governments and subregions.

Subregional Input

Suggestions to deal with this issue were provided through the subregional input process. They include the following: encourage efficient patterns of development that reduce public-service delivery costs¹²; seek assistance from state and regional agencies for planning and implementation of mixed-use development; change legislation to permit transfer of funds from redevelopment set asides or other sources for the provision of housing on a city-to-city basis¹³; seek fair-share state and/or federal financing for the cost of growth¹⁴; address competition strategies for intra-subregional planning¹⁵; link distribution of additional gas tax money to evidence of good faith effort to provide more concentrated density around transit corridors¹⁶; support joint contracting, revenue sharing and joint provision of services by local jurisdictions.¹⁷ Charging higher infrastructure costs for developments that require new facilities¹⁸, and establishing developer fees to provide growth related services and infrastructure appropriate to the level and type of proposed development¹⁹, are suggested methods to overcome fiscal constraints. However, the last two measures can potentially conflict

¹²VCOG input to RCP.

¹³Included in SELAC subregional plan recommendations, CVAG comments and WRCOG Growth Management goals and principles.

¹⁴Suggested by WRCOG.

¹⁵Input from Arroyo Verdugo Subregion.

¹⁶Input from West Side Summit.

¹⁷Included in WRCOG goals and policies.

¹⁸Input from South Bay Cities Association Subregional Strategy.

¹⁹Included in WRCOG Growth Management goals and objectives.

with the goal of reducing development costs.

Linkages and Relationships with Other RCP Components

The same land-use actions that help attract and sustain economic development are useful to revitalize disadvantaged communities and provide solutions to issues raised in the Housing, and Human Resources and Services chapters.

Suggestions provided by subregions to overcome the problems of fiscalization of land use also help achieve the goal of community self-sufficiency examined in the Human Resources and Services chapter.

As discussed in Chapter 2, funding sources such as Enterprise Zones, Employment Zones, Community Development Banks, Community Redevelopment Areas, and Community Development Corporations can be tapped to defray development costs incurred by local jurisdictions for the provision of services, equally to all residents. Furthermore, fiscal reform is essential to support the region's infrastructure needs and attract the region's basic industry clusters. The Finance chapter proposes a model for public-private cooperation to deal with fiscal reform at the state and local level.

The Housing chapter explores alternative funding sources for the production and subsidy of housing. The use of redevelopment set aside for housing, waiving development requirements and fees for provision of low-income housing, land banking and the development of partnerships with non-profit organizations are tools that can be used by local jurisdictions to overcome fiscal problems, increase the production of housing, and develop sustainable communities.

D. GROWTH MANAGEMENT POLICIES

The following policies are intended to guide growth in the region and mitigate its negative impacts. They are consistent with subregional input²⁰, and reflect possible answers to the growth related issues discussed above.

1. POLICIES RELATED TO GROWTH FORECASTS:

- The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used in all phases of implementation and review.
- In areas with large seasonal population fluctuations, such as resort areas, forecast permanent populations. However, appropriate infrastructure systems should be sized to serve high-season population total.
- The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used to implement the region's growth policies and to achieve the desired regional form.

²⁰See in particular input of WRCOG, IVAG, San Gabriel Valley, SELAC, Arroyo Verdugo, West Side Summit and VCOG subregions.

2. POLICIES RELATED TO THE RCP GOAL TO IMPROVE THE REGIONAL STANDARD OF LIVING

The Growth Management goals to develop urban forms that enable individuals to spend less income on housing cost, that minimize public- and private-development costs, and that enable firms to be more competitive, strengthen the regional strategic goal to stimulate the regional economy. The following policies would guide achievement of such goals.

- SCAG shall encourage local jurisdictions' efforts to achieve a balance between the types of jobs they seek to attract and housing prices.
- SCAG shall encourage patterns of urban development and land use which reduce costs on infrastructure construction and make better use of existing facilities.
- SCAG shall support subregional policies that recognize agriculture as an industry, support the economic viability of agricultural activities, preserve agricultural land and provide compensation for property owners holding lands in greenbelt areas.²¹
- SCAG shall encourage subregions to define an economic strategy to maintain the economic vitality of the subregion, including the development and use of marketing programs, and other economic incentives, which support attainment of subregional goals and policies.²²
- SCAG shall support local jurisdictions efforts to minimize cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.
- SCAG shall support local jurisdictions actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

3. POLICIES RELATED TO THE RCP GOAL TO MAINTAIN THE REGIONAL QUALITY OF LIFE.

The Growth Management goals to attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional strategic goal of maintaining the regional quality of life. The following policies would provide direction to reach such goals.

- SCAG shall support provisions and incentives created by local jurisdictions to attract housing growth in job rich subregions and job growth in housing rich subregions.²³

²¹Input from VCOG and IVAG.

²²Input by WRCOG.

²³Revised per WRCOG suggestion.

- SCAG shall encourage existing or proposed local jurisdictions programs aimed at designing land uses which encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and vehicle miles traveled, and create opportunities for residents to walk and bike.
- SCAG shall encourage local jurisdictions plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.
- SCAG shall support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems and activity centers.
- SCAG shall support local jurisdictions strategies to establish mixed-use clusters and other transit oriented developments around transit stations and along transit corridors.
- SCAG shall encourage developments in and around activity centers²⁴, transportation node corridors, under-utilized infrastructure systems and areas needing recycling and redevelopment.
- SCAG shall support and encourage settlement patterns which contain a range of urban densities.
- SCAG shall encourage planned development in locations least likely to cause adverse environmental impact.
- National Forests shall remain permanently preserved and used as open space. SCAG shall support policies and actions that preserve open space areas identified in local²⁵, state, and federal plans.
- Vital resources as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals should be protected.
- SCAG shall encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.
- SCAG shall discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.
- SCAG shall encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage and to develop emergency response and recovery plans.

4. POLICIES RELATED TO THE RCP GOAL TO PROVIDE SOCIAL, POLITICAL, AND CULTURAL EQUITY.

The Growth Management goal to develop urban forms that avoid economic and social polarization promotes the regional strategic goal of minimizing social and geographical disparities and of reaching equity among all

²⁴Activity centers are defined in the RME.

²⁵See IVAG, VCOG, Los Angeles City and San Gabriel Cities Association for specific open space policies.

segments of society. The following policies would guide the accomplishment of this goal:

- SCAG shall encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.
- SCAG shall encourage the efforts of local jurisdictions, employers and service agencies to provide adequate training and retraining of workers, and prepare the labor force to meet the future challenges of the regional economy.
- SCAG shall encourage employment development in job-poor localities through support of labor force retraining programs and other economic development measures.
- SCAG shall support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, child care, social services, recreational facilities, law enforcement, and fire protection.

E. THE REGIONAL OUTLOOK BEYOND 2010

Probing some of the future possibilities provides the opportunity to more clearly see the challenges ahead.

1. CHANGE DYNAMICS

a. Regional Demographics and Economy:

Stretching the forecast horizon, and assuming that the same dynamics influencing regional growth till 2010 will operate for another ten years, population is expected to reach 22.1 million in 2015 and 23.7 million in 2020. The rate of population growth will continue to decline, and births will constitute an ever increasing proportion of the growth. The proportion of 65 years old and over will also increase, but the population will remain younger than the national average. The number of housing units needed to properly house the increasing population will grow to 7.8 million in 2015 and 8.5 million in 2020. The number of jobs will reach 10.4 million in 2015 and 10.9 million in 2020²⁶.

The dynamics of demographic change are very fluid and these shifts can occur in relatively brief time periods. The growth forecasts for 2010 show non-Hispanic White (NHW), and Hispanic populations at 36 percent and 44 percent, respectively, of total regional population. By 2020 it is highly probable that the Hispanic population will reach 47 percent and that the Asian population will reach 12 percent. If the Black population continues to stay at 8 percent, NHW could be 33 percent of the total population. It may be, of course, that ethnic divisions will have become more blurred and lose significance as time passes. On the jobs side the following dynamics are possible; continued increase in smaller companies, quite footloose as to location; decreasing share of manufacturing jobs as a percent of total jobs, and possibly in real numbers;

²⁶The regional and subregional forecasts are preliminary. They have not been thoroughly reviewed through the subregional input process and are subject to revisions. In the review process they will be subjected the same bottom-up interactive procedure followed for development of the 2000 and 2010 forecasts.

POPULATION, EMPLOYMENT, AND HOUSING GROWTH SCAG REGION 2015 AND 2020

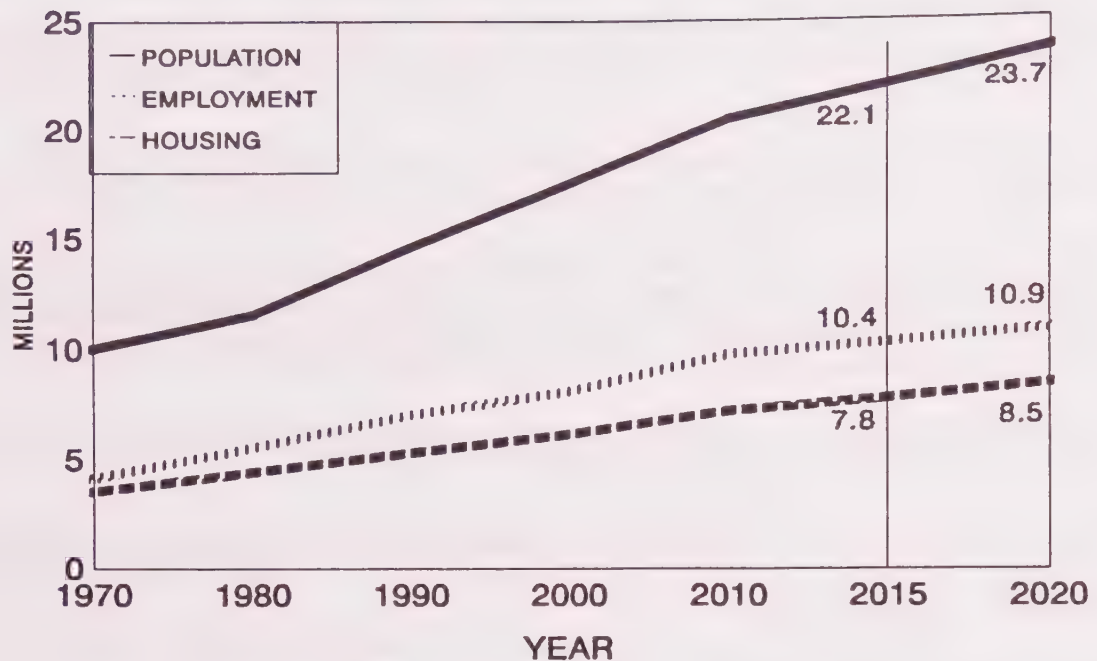


FIGURE 3-9

jobs requiring different skills from those needed in the past; emergence of new transportation systems that may result in new business and industry centers.

Preliminary Draft Subregional and County distributions of population and employment in 2015 are shown in Tables 3-5 and 3-6.

Table 3-5
Preliminary Draft Subregional Forecasts, 2015

SUBREGION	POPULATION	HOUSING	EMPLOYMENT
NORTH LA	1,167,000	375,000	292,000
LA CITY	4,752,000	1,711,000	2,214,000
ARROYO VERDUGO	673,000	264,000	466,000
SAN GABRIEL VALLEY	1,804,000	558,000	811,000
WEST SIDE SUMMIT	272,000	136,000	266,000
SOUTH BAY CITIES	946,000	350,000	621,000
SELAC: S.E. LA	2,233,000	695,000	1,142,000
ORANGE COUNTY	3,182,000	1,130,000	2,006,000
WRCOG: W.RIV.	2,297,000	824,000	660,000
COACHELLA	557,000	242,000	177,000
RIV. REMAINDER	71,000	29,000	13,000
VCOG*	960,000	366,000	463,000
VCOG:SANTA CLARITA	209,000	76,000	65,000
SAN BERNARDINO	2,660,000	959,000	953,000
IMPERIAL	254,000	73,000	77,000
SCAG TOTAL	22,000,000	7,787,000	10,226,000

* VCOG includes Ventura County and three cities in LA County.

SCAG Growth Management Element, 1993

Source: SCAG Draft Base Forecast, 1993

Table 3-6
Preliminary Draft County Forecasts, 2015

COUNTY	POPULATION	HOUSING	EMPLOYMENT
LOS ANGELES	12,096,000	3,958,000	5,908,000
ORANGE	3,182,000	1,130,000	2,006,000
RIVERSIDE	2,925,000	1,095,000	850,000
SAN BERNARDINO	2,660,000	959,000	953,000
VENTURA	921,000	352,000	431,000
IMPERIAL	254,000	73,000	77,000
SCAG TOTAL	22,000,000	7,787,000	10,226,000

SCAG Draft Growth Management Element, 1993

Source: SCAG Draft Base Forecast, 1993

b. Advanced Technology

From a growth management and urbanization perspective a few vital technologic possibilities include the following:

- **Alternative Fuels:** Particularly renewable energy sources including especially those which are non-polluting and easily available. This would expand available large scale urbanization alternatives, create major new economic development opportunities, and significantly change international trade.
- **Communication Systems:** The communication revolution has already infiltrated the worlds of work, entertainment, education, and shopping. The future promises an expansion of these emerging trends. Advanced communications systems and equipment will likely be the vehicles of the future, reducing reliance on the auto.
- **Transportation Systems:** Supersonic jets, which would cut flight time for long-distance flights by one-half; maglev rail, or vertical take-off and landing aircraft, which would make sites 100-to-200 miles away accessible to major present centers; new-style automobiles, such as "lean-machines," which would operate in narrower lanes, and would expand the capacity of existing roads; computerized electric cars, which would permit operations with minimal space between vehicles, would increase the capacity of roadways, and would mitigate highway congestion; slower-speed people-movers, from variations of electric carts and mopeds to moving sidewalks, which would be especially useful as distributors and collectors in conjunction with transit systems; jitneys that competitively move people in a new form of transit would reduce reliance on the privately owned auto.

c. Regional Infrastructures

Changing life-styles and values and political institutional organization will impact infrastructure needs. Much of the existing infrastructure is currently obsolete due to deferred maintenance or due simply to aging and the rapid pace of recent changes. Between now and 2010 a proportion of the housing built in the late 1940s, the

1950s, or 1960s will need replacing or major renovation. The currently obsolete infrastructure will need replacement and repair.

Office buildings of the 1980s could become obsolete beyond 2010, as are those built 40 years ago. Shopping centers, already threatened by the new merchandising techniques of discount stores, outlet centers and electronic purchasing, will have to be revamped. Parking structures, including the huge basement caverns, could become antiquated. Schools, hospitals, churches, amusement parks, sports stadia will have to be restructured to fit new life styles and environments or become archaic, as have the old amusement parks along the beach. The communication revolution will no doubt impact the various transformations.

2. ALTERNATIVE POSSIBLE GROWTH PATTERNS

Whether growth will continue beyond 2010 as forecast between now and 2010, or significantly slow, stop, (or even reverse itself) are alternative assumptions.

Another assumption both in the no-growth and the continued-growth paths is whether to expect widely dispersed growth and urbanization of additional desert and/or agricultural lands, or whether to count on very compacted growth with, at the extreme, all growth handled by densification and infill.

The next assumption is similar to the densification-compaction issue but deals with compaction at a different scale: the issue of "spread" vs. "centered" growth. Whether urbanizing new undeveloped lands or re-urbanizing by infill or densification, will the focus be on creating higher density mixed use centers and corridors, or on the more evenly spread out lower density arrangements with clearly separated land uses?.

3. GROWTH MANAGEMENT PRIORITIES

Given the above discussion of dynamics and possible alternatives, what growth management policies seem most critical in relation to the "beyond 2010" time frame?

a. Small Scale/Localized Planning

Local actions such as mixed-land-use, localized job/housing balance, increasing development density along transit corridors and/or stations and preserving open space, and design standards which affect site-specific patterns of development, will continue to be growth management priorities past 2010. This is important since it is generally acknowledged that localized changes in urban form are incremental, and that their cumulative impact on mobility and air quality are long-range, not likely to be felt until after 2010.

Examples of successful implementation of land use policies are numerous²⁷. Along with results of the ARB study showing a potential reduction of up to 11 percent of regional vehicle trips, they all point to the beneficial long-term effects of coordinated land use and transportation policies. The primary gains of

²⁷Calthorpe Associates, "Transit Oriented Development Design Guidelines", 1992 for the City of San Diego. Holtzclaw/NRDC, "Explaining Urban Density and Transit Impacts on Auto Use", 1990. Local Government Commission, "Land Use Strategies for Liveable Places", 1992. Transit/Residential Access Center, "Incentives for Trip Reduction Through Location of Housing Near Rail Transit Stations", 1991. Air Resources Board, "CCAA Guidance for the Development of Indirect Source Control Programs", 1990.

reducing single-occupant vehicle trips, and resulting air polluting emissions, are augmented by the secondary advantages of planning more livable communities and reducing the cost of congestion. Reduced stress, increased worker productivity and enhanced quality of life are added benefits.

As noted earlier, the different parts of the region are moving toward better job/housing balance. This tendency is likely to persist for an extended period of time. The positive impacts of this trend, together with local policy interventions to foster land uses supportive of mobility and air quality goals, will be essential for the maintenance and consolidation of mobility and air quality achievements. Progress in advanced technologies and localized land-use actions are primary maintenance strategies of air quality long-term programs.

b. Renewal/Replacement

Certainly a priority concern, given the rates of change anticipated, should be to guide investment into areas which are deteriorating. The key will be to bring about on-going renewal, arrest and reverse decline, and at the same time avoid levels of change that threaten established communities or overload viable infrastructure. One should not assume that such programs will always entail major densification. Renewal may include changed re-use of existing structures.

Renewal plans will need to encourage job-housing balance, at least at the subregional scale or at medium size city or "cluster of cities" scale. In addition to job-housing balance, it will be desirable to continue to encourage mixed use centers with moderate densities (*see* Chapter 4 of the Growth Management Element) to reduce congestion and pollution.

Issues of community cohesion and "ownership" or "control" will be a critical part of renewal. An important issue in renewal is maintenance, or even restoration, of special ecosystems. Additional issues concern the importance of maintaining links to a community's history, achieving levels of urban design and public art which can enrich the quality of urban life, moving towards a sustainable and healthful built environment, minimizing waste and toxic materials, and conserving resources.

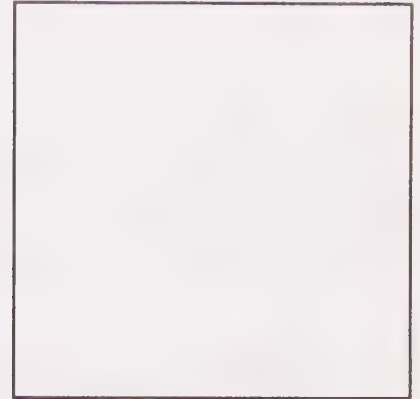
c. Further Urbanization

There will be an ongoing need for further urbanization of presently non-urban land, unless the policy were to force all growth out of the region's current boundaries, which would be unconstitutional and probably impossible.

Most of the prescriptions for renewal/replacement apply for further urbanization as well: achieving job-housing balance and broader scale income integration; encouraging sustainability, good urban design, and centering. For development in new areas there may be no existing community to involve as in renewal development. Rather there will need to be a phasing in of such involvement as an area progressively develops. Linkages to adjoining regions in Mexico, Arizona, and Central and Northern California are likely to also become increasingly important. Long range cost and responsibility for infrastructure should be part of the analysis.

The above constitute some of the priority growth management concerns derived from looking beyond 2010. There are undoubtedly others. What is most important is to recognize that changes ahead will probably be at least as dramatic as those behind us and time will not stop at the planning horizon!

Chapter 4



REGIONAL MOBILITY

- Introduction
- RCP and RME Goals
- Objectives (Performance Targets) And Conformity
- Regional Mobility Strategy
- Regional Transportation Financing Summary

A. INTRODUCTION

This chapter of the Regional Comprehensive Plan (RCP) is a summary of SCAG's 1993 Draft Regional Mobility Element (RME)¹.

The RME provides a flexible framework for the discussion and resolution of transportation planning issues expected to confront the SCAG region through the year 2010. The RME serves as both the federal and state required regional transportation plan for the SCAG region. When formally adopted, the RME will replace the 1989 Regional Mobility Plan (RMP) as the guide for developing the federal and state Regional Transportation Improvement Program (RTIP).

The economic vitality of Southern California and the individual jobs of millions of workers are dependent on a successful metropolitan transportation system that moves people and goods. This transportation system must be affordable, and must provide for equitable access throughout the region for all people, regardless of income; and for all businesses, both small and large. Furthermore, the metropolitan transportation system must conveniently link neighborhoods to nations, subregions to regions, and everything in between. It needs

¹ A copy of the complete 1993 Draft Regional Mobility Element may be obtained by contacting SCAG.

to serve economic, social, and recreational needs of the region. During the next 20 years, if the transportation system is to successfully move people and goods, the region must develop innovative strategies that build on and maximize huge public investments already spent or committed to highways, rail, bus, airports, seaports, and communications technologies. This system must efficiently combine highways, transit, ports, airports, and the proposed high speed rail along the Coastal and the California High Speed Corridors.²

Several key factors differentiate the RME from past transportation plans. Foremost, is concern for the economy, and for this reason, the RME treats transportation as a powerful job creating and cost cutting tool. Another major change impacting the RME is SCAG's decision-making structure, which now involves more elected representatives from a more diverse geographic base. The 20 plus member Executive Committee has expanded to a 70-member Regional Council. In addition, as part of the new "bottom-up" decision-making process, 13 subregional associations are formally participating in the development of the regional plan and its subregional parts.³ Also involved are county transportation commissions, Caltrans, transit operators, air districts, California Air Resources Board, public interest organizations, and citizens at large.

The passage of the federal 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) has brought about a significant number of new RME requirements and added responsibilities for SCAG. Finally, the federal Clean Air Act (CAA), California Clean Air Act (CCAA), and Lewis-Presley Air Quality Management Act present additional requirements that the RME must consider, including specific performance targets and plan conformity.

B. RCP AND RME GOALS

The RME must address specific mandated state and federal issues. But in terms of outreach, public comment, and review by SCAG committees, the goal selection process is the same for both the RME and the RCP. For this reason, the locally developed goals for both documents are almost identical in content. Actual language is slightly different as is to be expected. Table 4-1 briefly lists the RME goals and how they compare with the RCP goals. Table 4-2 represents the efforts of the public, professional planners, subregions, government agencies, and SCAG's committees to refine and detail exactly what the RME goals mean to the SCAG region.

TABLE 4-1
RCP AND RME GOALS

RCP	RME
	<ul style="list-style-type: none"> ● Sustain Mobility (Overall Goal Consistent With 5 Subgoals) <ul style="list-style-type: none"> ○ Foster Economic Vitality ○ Enhance the Environment ○ Reduce Energy Consumption ○ Promote Transportation-Friendly Development Patterns ○ Promote Fair and Equitable Access
● Raise Standard of Living	
● Healthy and Environmentally Sound Quality of Life	
● Equity	

² SCR1 created and funded the California High Speed Rail Commission. Additional funding for high speed rail is budgeted pursuant to Propositions 108 and 116.

³ The subregional input is shown extensively in the complete Regional Mobility Element

**TABLE 4-2
RME GOALS AND SUBGOALS**

SUSTAIN MOBILITY

- Sustain or better the 1990 levels of service for the movement of people and goods.
- Ensure that transportation investment provides for the greatest possible mobility benefit.
- Serve the transportation needs of everyone including the elderly, handicapped, disadvantaged and transit-dependent.
- Develop regional transportation solutions that complement subregional transportation systems and serve the needs of cities and communities.

RME SUBGOALS

Foster Economic Vitality	Enhance the Environment	Reduce Energy Consumption	Promote Transportation-Friendly Development	Promote Fair and Equitable Access
<ul style="list-style-type: none"> Promote transportation strategies that support and encourage economic vitality within the region, and assist in developing the Southern California economic base. 	<ul style="list-style-type: none"> Support transportation strategies that minimize impacts on the environment. 	<ul style="list-style-type: none"> Support transportation strategies and investment that decrease the region's dependence on traditional fossil fuels. 	<ul style="list-style-type: none"> Encourage land-use development patterns that complement transportation investments. 	<ul style="list-style-type: none"> Improve access to the regional rail and bus transit and high occupancy vehicle systems for subregions, cities, and neighborhoods as well as households of different incomes, race, and ethnicity.
<ul style="list-style-type: none"> Promote transportation strategies that reduce public and private costs, and enhance the region's competitive position. 	<ul style="list-style-type: none"> Support transportation policies and actions to meet reasonable state and federal air quality goals and objectives. 	<ul style="list-style-type: none"> Support the development of alternative fuels technologies for region's vehicles. 	<ul style="list-style-type: none"> Foster land-use decisions that encourage alternatives to the auto. 	<ul style="list-style-type: none"> Improve access to effective goods movement for households and businesses in different parts of the region.
<ul style="list-style-type: none"> Support transportation activities that encourage production of goods and services for local consumption as well as for export to other regions. 	<ul style="list-style-type: none"> Support new technologies that improve air quality, mobility, and the economy. 	<ul style="list-style-type: none"> Encourage non-motorized trips. 	<ul style="list-style-type: none"> Promote telecommuting infrastructure and work policies. 	<ul style="list-style-type: none"> Improve access to existing and new communications technology for transportation systems, transportation vehicles, households, and work places in different parts of the region.
<ul style="list-style-type: none"> Ensure that the region receives the maximum amount of federal, state, and private transportation funding and the employment these funds bring with them. 			<ul style="list-style-type: none"> Promote 3rd tier transit, smart shuttles including shared taxis, jitneys, dial-a-ride, etc. to act as feeder services to rail transit and to link transit centers and activity areas. 	<ul style="list-style-type: none"> Promote policies and procedures that ensure fair and mutually supportive decisions for allocating public and private funds for transportation in different parts of the region.

C. OBJECTIVES (PERFORMANCE TARGETS) AND CONFORMITY

Federal and state statutes contain mandated performance targets that are used to measure the effectiveness of the RME and air quality plans for air basins in the SCAG region (See Table 4-3 for the performance targets).

In addition to objectives required by law, as a matter of policy, the RME proposes a performance target range of a 10 to 14 percent transit mode split for Home to Work trips for the year 2010.

Finally, both the RME and the RTIP, which is based on the RME, must meet a federal conformity test. Under this federal requirement, SCAG must evaluate all transportation projects proposed in the RTIP and make a finding that the projects are consistent and in conformance with the State Implementation Plan (SIP) for the applicable air basin. Projects or activities that do not conform may be subject to the withholding of federal funding or permits.⁴ Conformity procedures that reflect the needs of each air basin are being developed pursuant to new federal rules released in November, 1993. A conformity determination on this draft plan must be made prior to the adoption by the Regional Council.

TABLE 4-3
FEDERAL AND STATE LEGALLY REQUIRED OBJECTIVES (PERFORMANCE TARGETS):
MOBILITY AND AIR QUALITY

Federal Requirements
<ul style="list-style-type: none"> • Contribute to an increase in peak-period Average Vehicle Ridership (AVR) by large employers with 100 or more employees. — 42 U.S.C. §7511a(d)(1)(B) • Offset with Transportation Control Measures (TCMs) the growth of emissions due to an increase in vehicle trips and Vehicle Miles Traveled (VMT). — U.S.C. §7511a(d)(1) • Meet emission budget requirements for mobile sources as determined by final State Implementation Plan/Federal Implementation Plan.
State Requirements
<ul style="list-style-type: none"> • Achieve an average vehicle occupancy of 1.5 persons per vehicle during commuter peak period hours by 1999 in severe and extreme non-attainment areas. — Cal. Health and Safety Code 40920(a)(2) • Achieve a substantial decrease in the growth of passenger vehicle trips and VMT in serious, severe, and extreme non-attainment areas. — Cal. Health and Safety Code 40919(a)(3) • California Air Resources Board recommends that air districts "... design plans that reduce VMT and trips growth rates to the maximum degree feasible, and which, at a minimum, decrease growth of VMT and trips to the rate of population or household growth."⁵ • Allow no net increase in mobile source emissions after 1997 in severe and extreme non-attainment areas. — Cal. Health and Safety Code 40920(a)(2) • Meet emission budget requirements for mobile sources as determined by final State Implementation Plan/Federal Implementation Plan.

⁴ 42 U.S.C. §7506(c), 43 U.S.C. §176(3)(c).

⁵ CARB California Clean Air Act Transportation Guidance, Transportation Standards, May 1991, Page 3.

D. REGIONAL MOBILITY STRATEGY

There are no magic bullets or easy strategies that the region may employ to achieve the RME goals for mobility or the equally important environmental and economic improvements called for in the RME's subgoals (*See Figure 4-1, 1990 E&F Levels of Service*). There are, however, very serious federal and state mandates that require the region to meet these goals or face severe sanctions. And, despite impressive rail system improvements and other transportation investments that will cost additional billions of dollars to implement, the region, according to SCAG's computer modeling projections, may not meet its mandated mobility and air quality requirements for 2010.

The RME has modeled five scenarios for 2010 based on a mix of transportation strategies or approaches. (*See Table 4-5, Mix Of Strategies and Table 4-6, RME Alternatives Compared for Performance*). Unfortunately, none of the modeled scenarios meets all the federal and state mobility/air quality requirements for 2010.

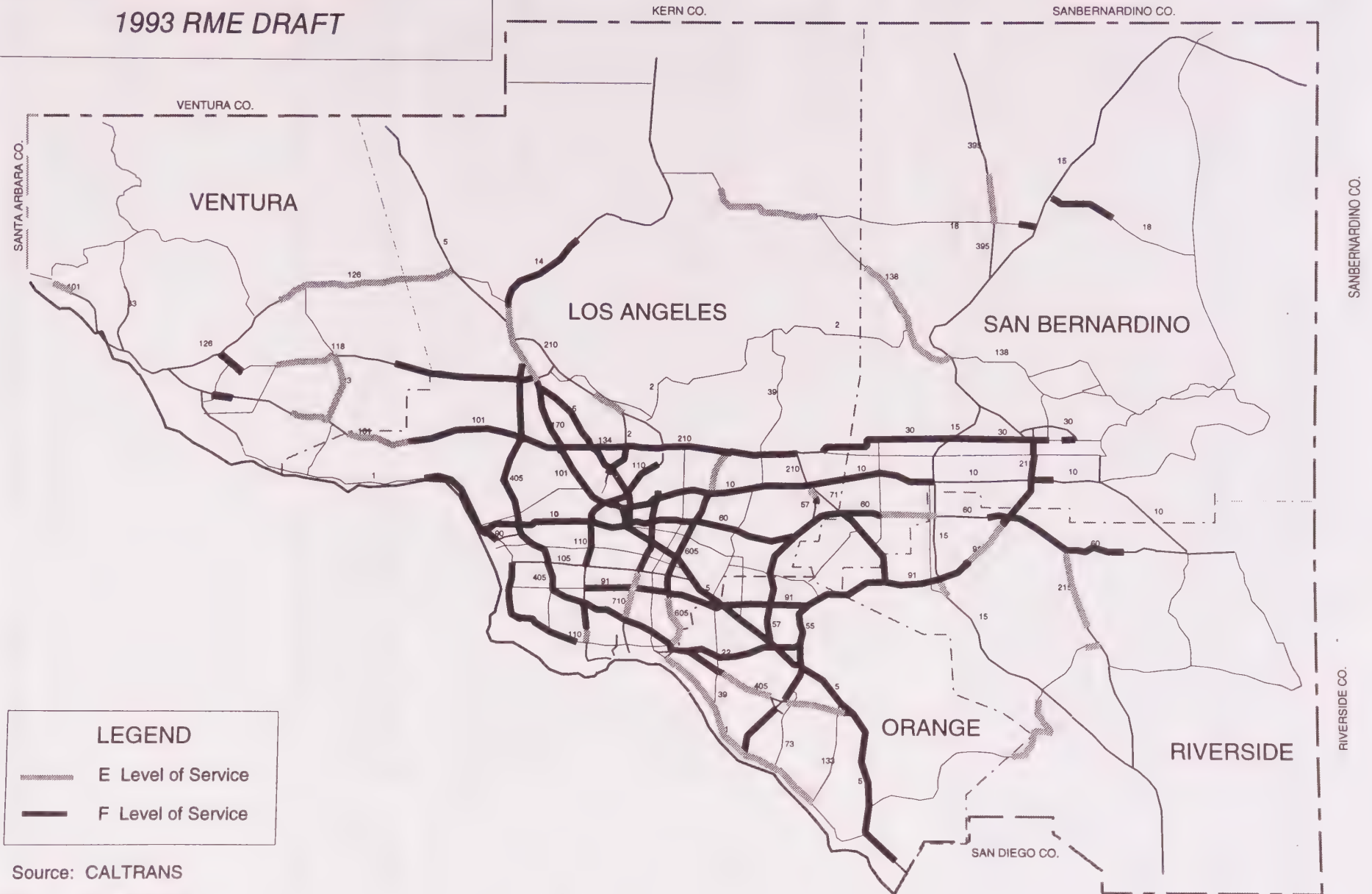
The Regional Council, with input from the public must review scenarios and strategy mixes and then select a transportation scenario for the region. The selection of a scenario and strategy mix will need to satisfy multiple requirements contained in federal and state transportation laws and federal and state environmental laws. Two primary forces will be the financial constraints (*See financial section*) and "emission budget" requirements found in these laws (*See Table 4-4, Summary of Budget Emissions*).

The mobility element must be within an "emissions budget" for the respective air basin plans. These budgets have not been set yet and are only finalized when the Environmental Protection Agency (EPA) approves an air plan for each applicable air basin. Table 4-4 also presents data for the South Coast and Ventura County from the workshops on the impending Federal Implementation Plans (FIP) for these two air basins and the alternatives this plan is considering. None of the alternatives, by themselves, achieve the level of emissions envisioned in the federal plans. Nor do they achieve the same level of emissions called for in the 89/91 plan for the South Coast Basin.

The following is a discussion of two of the alternative scenarios which appear to present the best approach to meeting the requirements the region has: The Constrained Project and an "Innovative Project Series." The latter presents additive programs that would allow the region to increase transit ridership and to provide additional incentives to reduce vehicle miles traveled and/or reduce emissions from on-road vehicles.

The issue is how the region wants to adjust its transportation behavior and investments as it balances the constraints of money, environmental objectives and mobility choices. The final plan must be within financial and emission budget limits.

1990 E&F LEVELS OF SERVICE 1993 RME DRAFT



Source: CALTRANS

TABLE 4-4
COMPARISON OF 2010 EMISSIONS GOALS TO RME ALTERNATIVES' EMISSIONS

Preliminary FIP data for on-road vehicles (estimated emissions budget for attainment)	VOC	NO _x	CO
South Coast Air Basin	41**	96**	387*
Ventura County	11**	9**	N/A
Current Local Plans	96	216	1559
Constrained Project	94	213	1526
Innovative Series	Depends on mix of strategies		

* Estimated from the 1991 Air Quality Management Plan

** Based on EPA data for passenger vehicles; does not provide full credit for ARB end of tailpipe controls.

Note: For illustration-actual emission budgets will change depending on the final emission reduction strategy

TABLE 4-5
MIX OF STRATEGIES

Computer modeled scenarios for meeting the transportation goals and requirement of 2010 are made up of the following "mix of strategies":
• Facilities (mixed-flow freeway and highways, High-Occupancy-Vehicle freeway and arterial lanes, and transit).
• Transportation System Management (ramp metering, signal improvement).
• Transportation Demand Management (employer based trip reduction, telecommunications, promotion of walking and cycling).
• Urban Form (integrated design of land use and transportation projects; growth management, job/housing balance policy).
• Technology (Mobility: "smart streets" with equipment to adjust intersection signals based on the volume of traffic. Air Quality: low and zero emission vehicles).
• Market Incentives/Pricing (parking fees, toll roads, congestion pricing).

1. CONSTRAINED PROJECT

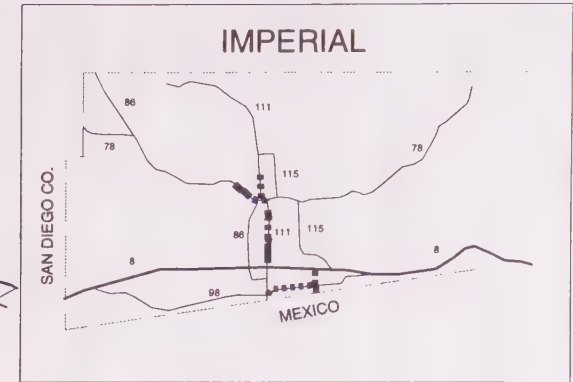
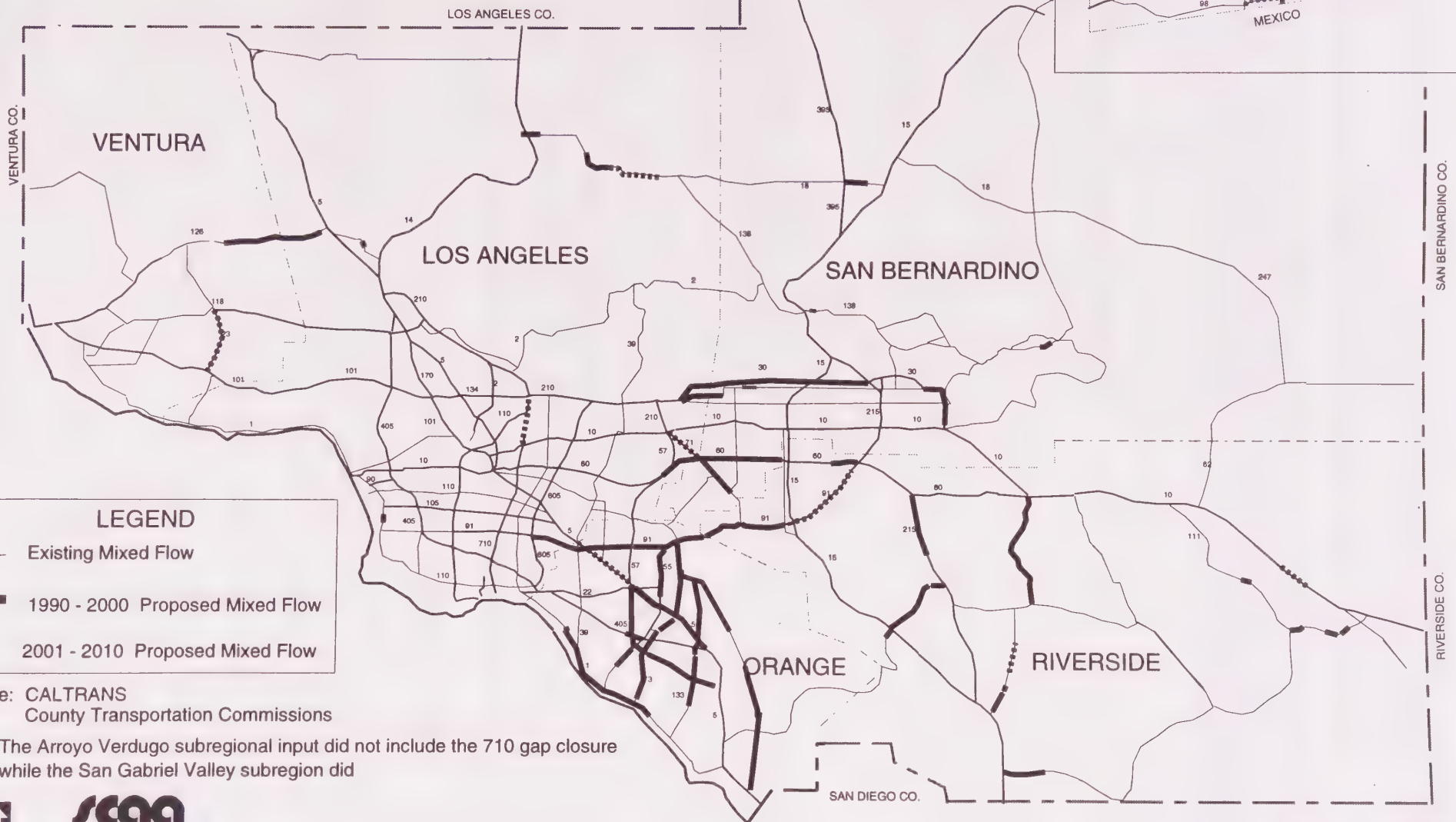
For the purposes of the RME, the Constrained Project consists of projects and programs that are either being implemented today, or have been budgeted⁶ and will be built or underway before 2010 (See Figures 4-2 to 4-5). Local commitment to long term or "reasonably available" funding is a major new test now imposed on mobility planning under federal ISTEA regulations (See Table 4-7 Reasonably Available Funding Criteria).

The Constrained Project also includes the following:

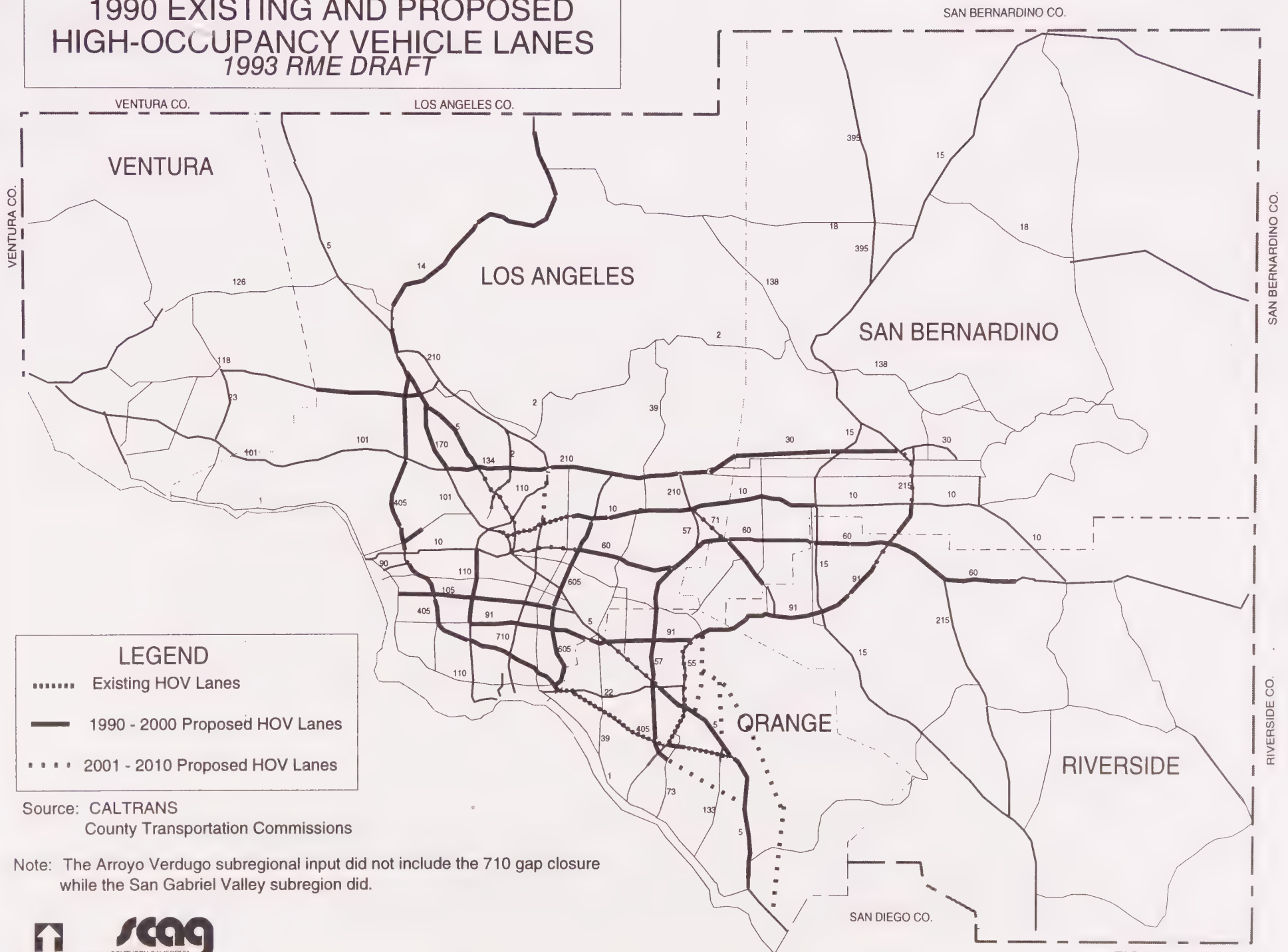
- An expanded parking cash out program that is expected to have a positive impact on mobility and air quality.

⁶ Funded pursuant to 1993-1991 RTIP updated July 1993

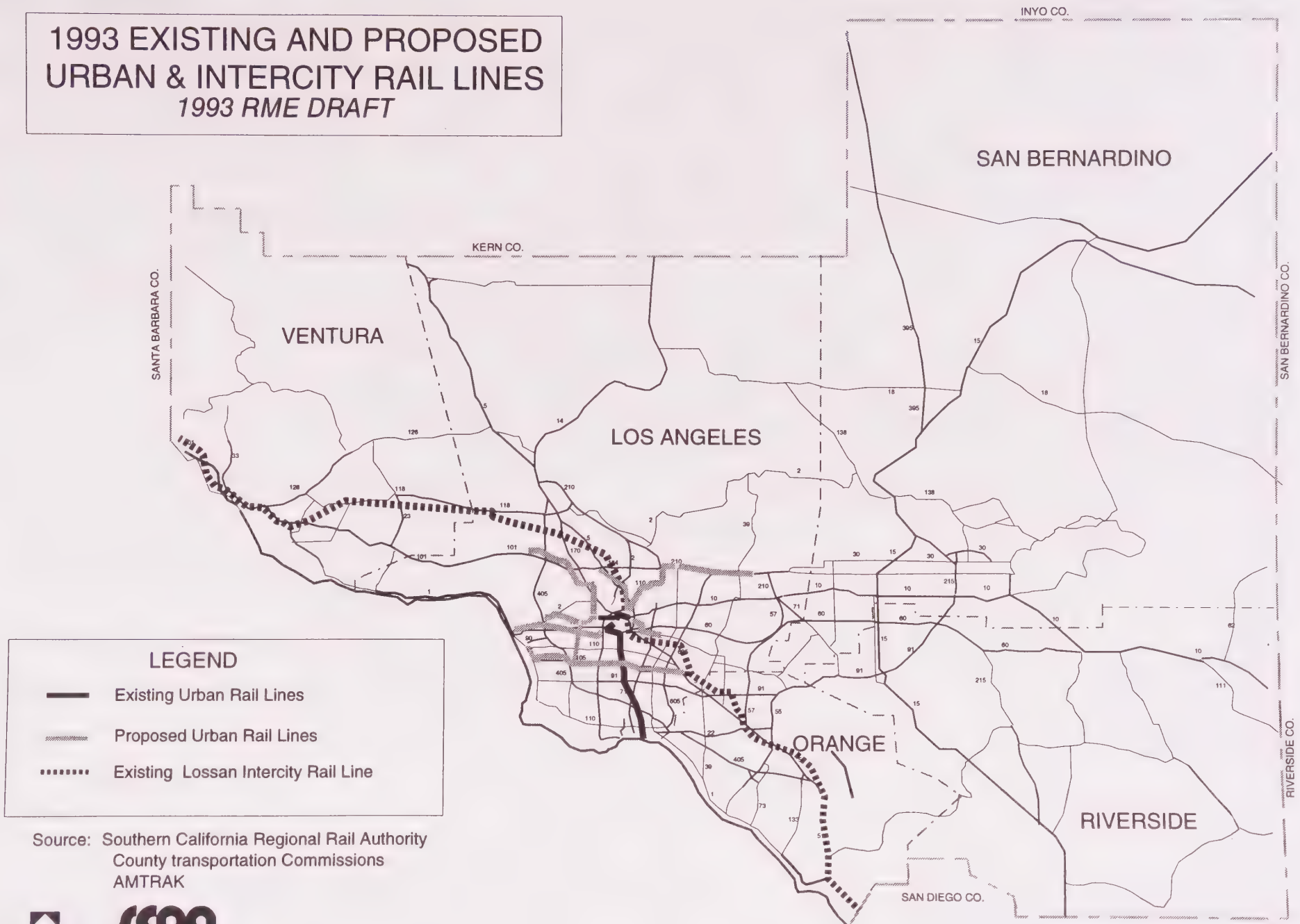
PROPOSED MIXED FLOW PROJECTS 1993 RME DRAFT



1990 EXISTING AND PROPOSED HIGH-OCCUPANCY VEHICLE LANES 1993 RME DRAFT



1993 EXISTING AND PROPOSED URBAN & INTERCITY RAIL LINES 1993 RME DRAFT



1993 EXISTING AND PROPOSED COMMUTER RAIL LINES 1993 RME DRAFT

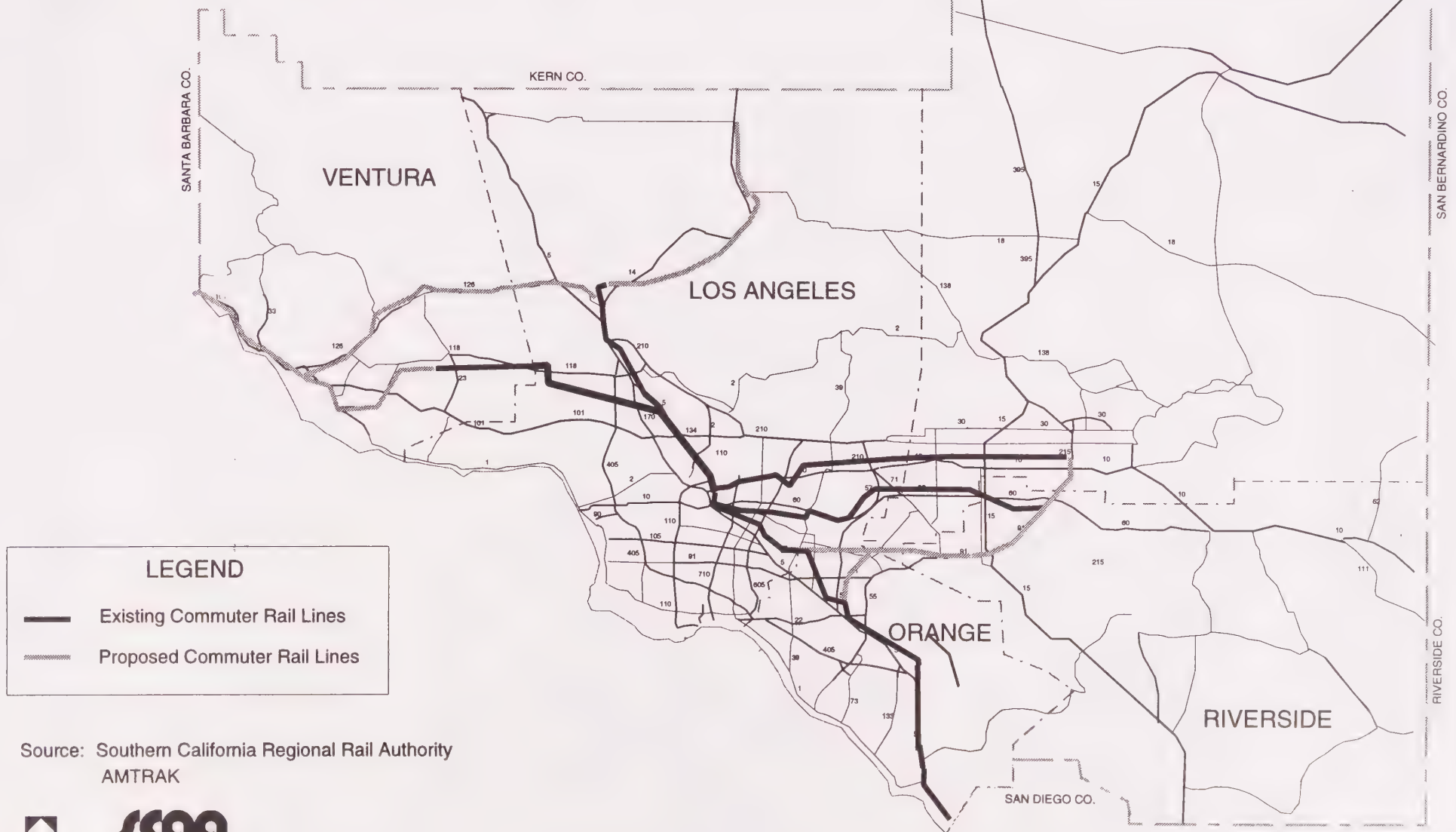


FIG. 4-5 10/15/93
Page 4-11

Table 4-6

RME ALTERNATIVES COMPARED FOR PERFORMANCE

PROJECT ALTERNATIVES									
PERFORMANCE INDICATORS		1990 (Ref. Point)	BASLINE 1	CURRENT LOCAL PLANS	CONSTRAINED PROJECT	INNOVATIVE SERIES			OBJECTIVES (Perform. Targets) (LEGAL)* (POLICY)**
+ MAJOR CHANGE IN STRATEGIC POLICES			+	+	+	+	+	+	
			RTIP93-99 (No Build) & 40% Population Increase	Facilities: - Hwy/HOV - Transit	TDM (HBW) - Transit/ Rideshare - Tier 3 Transit Shuttles (Rail & Transit Sta.)	More Transit/HOV TDM: - Pricing Non- Work Trips. - More Telcom More Technology - Transportation System More Tier 3 Transit Shuttles (Centers)	Most Technology - More Advanced TrafficMgmt.Sys. - More Advanced Transp. Tech. Most Tier 3 Transit - Most Work Sites - Non-Work Sites More Clean Vehicles	Most Pricing - Parking - Employee & Consumer - Congestion Fees - Emissions Fees - Gross Polluter Fees Revenue from Fees to Improve Transp.	
FUNDING POLICY		Existing \$	Existing \$	Existing \$	Reasonably Available \$	Reasonably Available \$ + Recom. Innovative \$	Reasonably Available \$ + Recom. Innovative \$	Reasonably Available \$ + Recom. Innovative \$	Reasonably Available \$ + Recom. Innovative \$
Ave. Daily Speed* (All Trips)		31.8	20.7	26.4	27.5	28.5			
Daily Vehicle Trips (All Trips)	Trips In Millions	34.3	45.1	44.8	44.3	43.4			
	Growth Rate Per Year		1.59%	1.53%	1.46%	1.33%			Limited to 2% of Population Growth*
Daily VMT (All Trips)	VMT In Millions	283.8	432.4	418.8	412.9	401.5		12%VMT Reduction (EDF Study) ^d	
	Growth Rate Per Year		2.62%	2.38%	2.27%	2.07%			Limited to 2% of Population Growth*
TRANSIT (HBW)		5.6% HBW	7.1% HBW	8.7% HBW	11.8% HBW	12.6% HBW	20% HBW Transit (Est. by U.I.G. ^c Study)		10-14% **
AVR (All Trips)		1.42	1.44	1.45	1.46	1.49			1.5 AVR * by 1999
ROG ^b	2010	483	109	96	94	91	89 ^f	84 ^f	No Net Increase After 1997* ^e
NO _x ^b	2010	456	225	216	213	210	215 ^f	206 ^f	
CO ^b	2010	3957	1779	1559	1526	1479	1462 ^f	1372 ^f	

- Improved local feeder system consisting of shared taxis, jitneys, and shuttles to support line haul rail by making rail transit more accessible.
- County Congestion Management Programs (CMP) as required by law.⁷

In this Draft RME, the Constrained Project comes close but does not meet the requirement of reasonably available funding — an issue that must be resolved prior to final RME adoption in the first quarter of 1994. Of equal concern, based on SGAG's computer modeling, the alternative's proposed system improvements provide at best a 1.46 Average Vehicle Ridership (AVR), which does not meet the state required 1.5 AVR for all peak period trips by the year 1999. Failure to meet mobility and air quality mandates could subject the RME to possible EPA sanctions or lawsuits that could freeze federal funding for the region.

TABLE 4-7
REASONABLY AVAILABLE FUNDING CRITERIA

- | |
|--|
| <ul style="list-style-type: none">• Has the proposed implementing agency (local, regional, state or federal government or private organization) taken a formal action by the time of Plan adoption to authorize the funding source?• Is there a historical trend that resources of this type are usually approved by the public or their representatives?• Have private sector organizations (such as the Chamber of Commerce, trade organizations, businesses, private task forces, etc.) shown support (e.g. policy, action, education) for the proposed funding mechanism?• Has the state or federal government taken action required as a prerequisite or condition for enabling the resource by the time of Plan adoption? |
|--|

To be considered "reasonably available," each of the criteria must be answered YES or NOT APPLICABLE. Criteria will be interpreted broadly. The specific funding source, along with the analysis, will be brought forward through the SCAG committee process for discussion and approval. ⁸
--

2. INNOVATIVE PROJECT SERIES

To better meet air quality and mobility requirements and avoid federal sanctions, the RME also proposes an alternative to the Constrained Project, featuring a mix of strategies or innovative steps. This alternative is referred to as the "Innovative Project Series." More than a stand-alone alternative project, the Innovative Project Series focuses on advanced technology and pricing options that may be implemented in either a limited or aggressive fashion. The public and regional decision-makers will be able to weigh and adopt all, parts, or various strategy mixes, that make up the Innovative Project Series.

The Innovative Project Series builds on the Constrained Project by prudently expanding projects and programs using reasonably available funds plus innovative public and private funding sources. (Under ISTEA, projected revenue sources, beyond those already identified in the Constrained Project may be used to fund the Innovative Project Series, provided specific strategies are identified to ensure availability of projected revenues). The Innovative Project Series, in its basic configuration generates a 1.49 AVR and of all the alternatives comes the closest to meeting the state required 1.5 AVR for all peak period trips. Using advanced technology or market pricing or some combination of both strategies, the Innovative Project Series

⁷ Cal. Gov't Code §65081 (b) and §65089.2(a)(b).

⁸ Funding criteria approved August 1993 by SCAG Transportation and Communications Committee.

presents decision-makers with perhaps the only opportunity to meet mobility and air quality requirements for 2010.

The "basic" core of the Innovative Project Series calls for:

- Additional Metrolink service including improved headways and reverse commute runs.
- Additional express bus service, particularly in Orange County.
- Signal system improvements resulting in bus priority on key arterials in Los Angeles County.
- Additional HOV lanes on the 118 and 23 freeways in Ventura County and the 101 Freeway in Los Angeles County.
- Trip reductions from increases in telecommuting and from expansion of walking and non-motorized trips.
- Intelligent Vehicle Highway Systems (IVHS)/Advanced Transportation Management System (ATMS) technologies are planned to increase freeway capacity by 10 percent and arterial capacity by 5 percent.
- Limited pricing strategy, based on increased parking charges produces a 1.5 AVR for all peak period commute trips.

The basic core also significantly expands shared taxis, shuttles and jitneys to serve all major activity centers. This builds on the feeder service to line haul transit centers already called out in the Constrained Project. This expansion of the "third tier" of transit is proposed because the constrained project is focusing mostly on tiers one and two of transit systems. Tier one is the longer distance line haul service like Metrolink, some express bus services and other longer distance rail services. The second tier is the support bus and paratransit service that provides service to connect to the tier one service or medium distance services and can connect communities. The third tier is localized, short trip service that is more community oriented. This can also provide service to the local rail station. The average trip length on the current transit system is about four miles. The average trip length in the region is currently eight miles (See Table 4-8, Three-tier Transit System Expansion, for a full discussion on use of shared taxis, jitneys, and advanced technology smart shuttles).

**TABLE 4-8
THIRD-TIER TRANSIT SYSTEM EXPANSION**

Third-tier Transit System Expansion	
<ul style="list-style-type: none"> • The "Third-tier Transit" concept was analyzed by the Urban Innovations Group (UIG) in connection with a SCAG funded analysis entitled "Regional Urban Form Study". The study suggests that land use strategies that call for concentrating growth at transit stations will by themselves not meet regional air and mobility goals. According to UIG, concentrating growth at rail stations will increase the modal split for transit in the home-to-work market above the trendline projections, but may result in localized congestion that offsets advances in mobility and air quality. SCAG's own computer modeling under the Urban Form Alternative substantially corroborates the UIG observations. The UIG study then premises and models a multi-tiered, flexible response transportation system that maximizes and supports current and planned rail transit projects this model generates a modal split that falls in the 15-25% range. • The Innovative Project Series, features a range of third-tier transit services starting with shared taxis, shuttles, jitneys and progressing to advanced technology "zero emission smart shuttles" that can be computer routed for short speedy trips. This would augment local services already being provided. • Concept takes advantage of fact that most trips average eight miles. Small vehicles are well suited to the short trip market and the hard to serve medium trip market. • It is envisioned that the smart shuttle would be primarily privately operated under public policy management and oversight. 	

⁹ Regional Urban Form Study, Urban Innovations Group, August 9, 1993

Third-tier Transit System Expansion

- Concept builds on and accrues the advantages of urban form strategies which reduce motorized trips by placing goods, services, and other activities all within a short walking trip of home and work.
- Concept has numerous potential benefits including modal shifts in the non-home-to-work travel market; reduced public expenditures because third tier transit is all or partially privately financed; and sustainable employment and economic development opportunities. Long-term jobs will be created in regional manufacturing of shuttles as well as in entry and mid level work opportunities in driving, operations and maintenance. Overall, Third-tier transit could become part of a sustainable regional manufacturing base producing high tech products for both local consumption and global export.

Innovative Project Series - Aggressive Use of Advanced Technology: According to Urban Innovations Group (UIG) modeling analysis, adding computerized or smart shuttles to the strategy mix for the Innovative Project Series would maximize the third-tier of the system already specified in the base core of this alternative. Such a responsive, extensive transit service would provide a home-to-work modal split in the 15 percent to 25 percent range.

Aggressive implementation of all three tiers of the Transit system would allow the region to meet state and federal mobility and air quality mandates. This probably cannot be achieved with the present financial resources available to the region and/or current investments being made on transportation.

The operating assistance to maintain and operate the existing and planned system is rapidly using up the region's financial flexibility.

The SCAG advanced Transportation Technology Task Force is developing specific recommendations in the utilization of this concept and will make recommendations to the Regional Council for plan adoption.

Innovative Project Series - Aggressive use of Market Incentives/Pricing Mechanisms: Year 2010 VMT reductions of almost 12 percent over baseline have been modeled by the Environmental Defense Fund (EDF) for the Southern California region using an aggressive package of market incentives.¹⁰ A similarly modeled package of innovative market incentives for the San Francisco Bay area also produced 12 percent reductions in VMT for the same time period¹¹. SCAG sensitivity runs, which considered pricing assumptions for auto operations, transit, and parking that were similar, though distinctly different to those used in the EDF and San Francisco, studies reported significant improvements in mode splits.

However, the SCAG model runs for market incentives' most dramatic finding was that when proceeds from market incentives are re-invested in transportation service enhancements such as reduced headways, the mobility indicators are more than doubled. Or to put it another way, the same transportation improvements can be obtained with considerably less costly pricing mechanisms if income is reinvested in service improvements. (See Table 4-9, Market Incentives/Pricing Mechanisms).

Aggressive implementation of a market incentive program would allow the region to meet state and federal mobility and air quality mandates.

¹⁰ Transportation Efficiency: Tackling Southern California's Air Pollution and Congestion, Michael Cameron, March 1991, Environmental Defense Fund, Regional Institute of Southern California.

¹¹ Harvey, Greig, Pricing and Travel Behavior, June 15, 1993.

Long-term Market Incentives/Pricing Mechanisms strategies currently being examined under the Innovative Project Series include accelerated parking cash out, peak-hour congestion pricing, emissions charges for gross polluters, and emissions fees based on emissions per mile. The Market Incentives Task Force will make specific recommendations on the use of market incentives to the Regional Council for inclusion in the adopted plan.

TABLE 4-9
MARKET INCENTIVES/PRICING MECHANISMS

ENVIRONMENTAL DEFENSE FUND/RISC STUDY MARCH 1991		SCAG SENSITIVITY RUN, PACKAGE 5, 1993 DISCUSSION DOCUMENT	BAY AREA PRICING STUDY JUNE 15, 1993
Strategy	Pricing Level	Pricing Level	Pricing Level
Regional Congestion Pricing	\$3.00/day/vehicle		\$0.10 per mile
Regional Employee Parking Charge	\$2.25/day/vehicle	\$3.00 per day minimum or current levels if higher 10 minute Bus Service (transit = \$½)	\$3.00 per day minimum & higher where already higher (free transit)
Regional Non-Employee Parking Charge	\$0.30/day	Arterial HOV Lanes \$0.60 per hour	\$ 0.01 per minute (\$3.00 per day maximum)
VMT/Smog-Based Registration Fee	\$110/year	\$0.05 per mile	average \$125 per vehicle
Gasoline Tax Increase		\$1.00 per gallon	\$2.00 per gallon
Net Impacts	12 % ↓ in VMT	Vehicle Trips (VT) Reduced ● 10% ↓ for Home-to-Work ● 9.5% ↓ for Non- Home-to-Work	1987 ● 14.8% ↓ in VMT ● 15.9% ↓ in VTrips <hr/> 2010 ● 11.6% ↓ in VMT ● 12.0% ↓ in VTrips
Note: Modeling methodologies, assumptions, and 2010 population projections vary greatly from one study to another.			

3. LISTING OF ALL MODELED ALTERNATIVES

1989 RMP Adopted Plan (No Project for The EIR): Though it would not meet current funding requirements, this alternative until revised or replaced continues as the adopted plan for mobility for the SCAG region and the adopted TCM in the 1991 air plan for the SCAB.

This alternative reflects the impacts of new (higher) socioeconomic data forecasts, with the assumption of a distribution representing jobs/housing balance. Some of the projects and programs can be funded (constrained) and some cannot (unconstrained).

Baseline #1: This scenario represents the "No-Build" Project, as it includes only those transportation improvements currently under construction or fully environmentally cleared, but includes no mixed-flow highway improvements per an agreement with SCAG and the California Air Resources Board (ARB) in the board's conditional approval of the 1991 Air Quality Plan for the SCAB. Projects and programs currently programmed for implementation by the year 2010 by the County Transportation Commissions and Caltrans, as of July, 1993, are included in this scenario. The alternative is based on existing funding, which is within the criteria for reasonably available funding.

Current Local Plans: Projects and programs currently programmed for implementation by the year 2010 by the County Transportation Commission and Caltrans, as of July 1993, are included in this scenario. The alternative is based on existing funding, which is within the criteria for reasonably available funding.

Constrained Project (The RME Project for the EIR): This scenario is similar to Current Local Plans, in terms of the physical improvements included, but includes minor policy changes aimed at encouraging alternative modes of transportation, such as Katz parking cash-out program and the federal energy act. It includes only those programs that are likely to be fundable based on reasonably available funding.

Innovative Project Series: This scenario builds upon the Current Local Plans and the Constrained Project by adding a prudent number of improvements, based on reasonably available funds plus innovative funding sources, and emphasis on pricing strategies and technology to achieve the 1.5 AVR objective for all peak period trips. Also included are optional advanced technology and market incentives/pricing mechanisms which may be added to the basic core of this alternative.

Urban Form Alternative: This scenario looks at the impact of a revised land use distribution with the transportation improvements included in the Current Local Plans alternative. The urban form distribution included in this model run concentrated higher density development around rail stations.

4. REGIONAL AVIATION SYSTEM PROGRAM

The SCAG region contains the largest system of airports in the world. There are 56 public-use civilian airports and 10 other military air installations, two of which have been marked for closure by the Department of Defense and one that will be realigned and downsized. One other military airbase is under study for military/civilian joint-use.

In 1991, the region's commercial airport system served 61.8 million annual passengers and 1.5 million tons of air cargo. Most of this demand was served by five urban-area commercial airports. These airports include Los Angeles International, Ontario International, John Wayne, Burbank-Glendale-Pasadena, and Long Beach. Other commercial service airports serving the region include Oxnard, William J. Fox, Palmdale, Palm Springs and Imperial County.

While the SCAG region is first in aviation activity compared to any other region in the world, it has been beset by an expected shortfall in commercial airport capacity after the year 2000. This shortfall was expected because existing commercial airports were limited below physical capacity due to policy constraints resulting from environmental impacts. A strategy was followed to increase capacity by identifying new airport sites, or modal substitutes such as high-speed rail. These efforts were successful in identifying potential new airport sites, but unsuccessful in finding sites that were technically feasible and acceptable to local communities. In light of the announced military airbases closures, airport capacity shortfall may be significantly mitigated.

The currently emerging strategy is for the military airbases and a site in the Long Beach Harbor to compete for market share. An evaluation of the potential market share of each airbase is currently being conducted by SCAG.

Commercial airport ground access is another major concern. As airports reach their physical capacity, access infrastructure will become increasingly congested. While additional facilities may be needed, these must be balanced with inter-modal and multi-modal access strategies. Ground transportation modeling and analysis will be conducted for all five urban-area commercial airports to achieve the latter.

The general aviation system is under increasing budgetary pressures as local governments experience the effects of recession. This is occurring during a period when the roles of general aviation airports are changing from recreational uses to more support for business, government uses and emergency response. A study of these trends is underway.

Another major concern is the strategic role of the aviation system in contributing to the economic recovery of the region and future economic development, particularly in relation to international trade. New international relationships, new technology, and new aviation capabilities need to be assessed to determine the best direction for the region.

5. GOODS MOVEMENT PROGRAM

Goods movement in the SCAG region is critically linked to the local economy and has significant impact on mobility, the environment, quality of life, and land use. Foreign trade makes up a major part of regional goods movement and has emerged as a major sector in the region's economic base.

The volume of merchandise traded through the Los Angeles Customs District has grown from \$6.2 billion in 1972 to \$121.8 billion in 1992. Total trade, imports and exports combined, on the region's rail and highway systems has increased by 16 percent per year.

In terms of employment, the U.S. Department of Commerce computes that for every additional \$1 billion of U.S. exports, 19,000 jobs are created through:

- Increased demand for manufactured goods.
- Increased goods delivery which supports thousands of jobs in the trucking, wholesale trade, railroad, shipping and air cargo industries
- Increased service support for business travelers which means more jobs in the hotel, travel, and restaurant industries.

Few improvements to the region can have as great and beneficial impact as enhancement of goods movement. Clearly such improvements help the region sustain mobility which is the principal goal of the RME. Equally importantly, betterment of the goods movement system helps raise the standard of living for a significant portion of the region's work force.

Creating more jobs and increasing regional commerce hinges on efforts to make goods movement more competitive and yet still meet new federal and state air quality requirements that have been mandated for the region. This is one of the thorniest and most serious dilemmas facing the region today. However, as

discussed more extensively in the economic chapter of the RCP; from an historical perspective, nations and regions have actually become more competitive by successfully learning to resolve conflicting interests. (See Chapter Two, The Economy, in the Draft RCP.)

Major goods movement facilities in the SCAG region include the ports of Hueneme, Long Beach, and Los Angeles; airport operations at Burbank, John Wayne, Long Beach, Los Angeles, and Ontario; and a system of railroads, freeways, highways, and arterial truck routes.

Issues confronting the efficient movement of goods are the following:

- **System Improvements:** Development, operation and maintenance of the region's significant existing and proposed freight movement facilities is essential to revitalizing the Southern California economy. Key improvements are the following:
 - Completion of the Alameda Corridor is essential to the region's fight to stay competitive in the world market. Three quarters of a million jobs and the loss of port business to seaports in Ensenada; Mexico, and Tacoma, Washington are tied to the successful funding and approval of the Alameda Project.
 - Extension of improved highway access to the Port of Hueneme in Ventura County is also critical to the efficient and cost effective movement of goods within the SCAG region as well as in out of the SCAG region to other international markets.
 - Study of freight rail corridor consolidation east towards Barstow in San Bernardino County to evaluate the long term efficient movement of goods.
 - Completion of the new Calexico East Port of Entry and final resolution of connection issues has taken on a new sense of urgency with the approval by Congress of the North American Free Trade Agreement (NAFTA).
- **Energy:** The common thread that runs through all aspects of goods movement from air quality issues to cost of operations is "energy". A fix of one energy-related problem frequently adds or creates problems elsewhere. For example, the search for cleaner emissions can drive up operating costs to cover use of more expensive clean fuels.
- **Safety:** Freight accidents and incidents on the region's roadways drive up cost of goods and reduce mobility for all other users of highway/freeway systems.
- **Mode:** System inefficiencies and mode conflicts drive up costs and reduce the region's competitiveness. The Alameda Corridor improvements are designed to increase the region's businesses competitiveness by removing bottlenecks in the ship to truck/train network.
- **Truck & Rail:** Truck and rail move goods to and from the SCAG region and are responsible almost exclusively for delivery to wholesale, retail, and industrial sites. Trade-offs between the two that will be required to meet the regions' goals and mandates for mobility, air quality, and standard of living must consider the totality of the truck and rail systems.

- **Urban Form:** Land-use designs and infrastructure development do not adequately accommodate the needs of goods movement. Off-Peak-hour truck use of highways and streets can improve mobility overall, reduce the cost of doing business, and increase competitiveness. However, off peak hour deliveries may require early morning or late evening shipping to retail outlets which are frequently surrounded by residential neighborhoods. To be accepted by the public, deliveries during non-traditional hours must be made to on site shipping docks that are designed to shelter and insulate surrounding residences from noise and light.

6. TRANSPORTATION CONTROL MEASURES

Transportation Control Measures (TCMs) are strategies designed to reduce the amount of motor-vehicle based emissions by changing the way people make trips, by alleviating traffic congestion, and by facilitating infrastructure changes to promote alternatives to single-occupant vehicles.

Strategies and requirements for TCMs used to meet air quality requirements differ for each of the region's six non-attainment areas. However, maximum use of reasonably available TCMs in conjunction with all other strategies (stationary and area) is mandated by law.¹² (See Table 4-10 for federal and state TCM requirements.)

TABLE 4-10
FEDERAL AND STATE TRANSPORTATION CONTROL MEASURES REQUIREMENTS

FEDERAL	STATE
108(f) list of TCMs	Implement TCMs considered reasonably available
TCMs must be: Enforceable Quantifiable Replicable Accountable	AQMP to provide for TCMs
Contribute to an increase in large employer Average Vehicle Ridership	Ranked by cost-effectiveness
Offset growth in emissions due to increases in VMT or Vehicle Trips	Monitoring procedures for compliance and effectiveness
	1.5 peak hour Average Vehicle Occupancy by 1999
	Substantially reduce the rate of increase in VMT
	Publicly acceptable

¹² Federal Clean Air Act, Lewis-Presley Act, California Clean Air Act, ISTEA

As part of the air quality plan development process, SCAG is responsible for providing socio-economic data for three air basins:

- The Ventura County portion of the South Central Coast Air Basin.
- Portions of the Southeast Desert Air Basin including Mojave Desert AQMD area, Coachella Valley and Antelope Valley.
- The South Coast Air Basin (SCAB).

In the South Coast Air Basin, SCAG in cooperation with local governments is also responsible by statute for developing and providing TCMs to the SCAQMD for inclusion in the Air Quality Management Plan.

Additionally, SCAG's role is to ensure conformity with the applicable SIP, to monitor and to ensure that the RME and RTIP gives priority to TCMs.

Several SCAG Task Forces made up principally of local government representatives have assisted in providing policy level input into the TCM development process. These committees include the following: Advanced Transportation Technology Task Force; Market Incentives Task Force; Aviation Technical Advisory Committee; Regional Railroad Air Quality Emission Reduction Program; and the joint SCAG/SCAQMD TCM Policy Committee.

While specific recommendations for the South Coast TCMs are still outstanding, initial indications are that the basin's TCM efforts will consist of a comprehensive mobile source emission reduction strategy based on the following:

- **Mobility Improvements:** Closer coordination and integration of air quality and congestion relief measures through the CMP and deficiency plan process are being examined. The impacts of transportation facility improvement are also being addressed.
- **Technology:** Providing innovative technological means to reduce vehicular emissions is likely to be an important cornerstone of the strategy.
- **Market Incentives/Pricing:** Such strategies could be used either to enhance or substitute for TCMs. Market incentives have the potential to also fund needed transportation improvements.
- **Non-vehicular Mobile Source Emission Reductions:** Railroad, airport ground access and goods movement emissions are being re-examined for implementation at the federal, state and regional level.

One of the major issues being debated currently in the SCAB is the structure or mechanism that will be used to implement TCMs. There appears to be three thrusts to this issue: (1) reliance on regional rules (2) pricing, and (3) market/service responsive approaches.

Non-Auto TCMs: In addition to efforts to achieve emission reductions from vehicles, the South Coast Air Basin has also included strategies to reduce emissions from planes and trains. The roles and specific responsibilities of various agencies involved in implementing these TCMs are still being debated.

Regional Railroad Emissions Control Measure: The Railroad Emissions Control Measure from the 1989/91 South Coast Air Plan is being refined for the 1994 Ozone SIP Submittal. This measure is focuses on railroad operations in the South Coast Air Basin, including freight, commuter, and intercity passenger trains. It could have implications on the surrounding air basin as well. The intent is to reduce oxides of nitrogen from diesel-electric locomotives.

Key concerns include: ensuring that adverse modal diversion from trains to trucks does not occur; the development of a comprehensive financing plan; and the provision of a backstop measure.

The decision process for establishing control methods needed to achieve a substantially greater reduction in 2010 emissions is as follows. A Regional Railroad Air Quality Emission Reduction Program has been established, with a Policy Board and five Standing Committees: the Locomotive Propulsion Systems, Finance, Legal, Consolidation, and Freight Movements Committees. In addition, an Emissions Reduction Target Subcommittee will finalize the emissions reduction target for 2010 (currently set at 90%).

The previous Railroad Emissions Measure called for Railroad Electrification. The current form of the measure is technology-neutral, and calls for one or a combination of the following strategies to be used to lower locomotive emissions: clean diesel, SCR, cleaner fuels such as LNG used by gas engines or dual-fuel engines, electrification, and/or new locomotive power plants such as fuel cells.

A series of studies and demonstration projects will be completed by the beginning of 1996, permitting comparisons between alternative control methods, including feasibility and time to commercialization, life-cycle costs, and funding/financial plans required for implementation. The Policy Board will refine the Railroad Emissions Reduction Measure as appropriate, by June 1996.

Aviation Transportation Control Measure: The respective roles and responsibilities of the various agencies involved in implementing aviation Transportation Control Measures (TCM's) are still being debated. Currently, SCAG is developing ground access plans for all the air carrier airports, the SCAQMD is developing an indirect source rule that will be applied to these airports, and EPA is developing an airport control strategy pursuant to the Federal Implementation Plan (FIP). The exact division of responsibilities between these agencies in implementing aviation TCM's will be determined in the future.

E. REGIONAL TRANSPORTATION FINANCING SUMMARY

Table 4-11 illustrates a regional cost-revenue summary for the facilities in the Constrained Project for the year 2010 of the RME. The revenues fall short of covering costs by 5 billion dollars. At this time the shortfall is a major issue. Most of the shortage is for transit capital and operations. The revenues are based on estimates of federal, state, and local funds that are judged to be reasonably available for various categories of projects. The revenues and costs were developed through discussions from the county transportation commissions and Caltrans.

SCAG and transportation agency staffs are continuing to review costs and review estimates in order to bring forward proposals for resolving the shortfall issue. A balanced budget is necessary to meet state and federal requirements.

TABLE 4-11
1993 REGIONAL MOBILITY ELEMENT
COST-REVENUE SUMMARY (a)
1991 - 2010

PROGRAM	COST	%	REVENUE	NET
Highway Operating	\$6.4	11.8	\$6.3	(\$0.1)
Transit Operating	22.9	42.7	21.0	(1.9)
Regional Streets and Roads	0.7	1.3	1.4	0.7
Highway Capital	10.6	19.6	9.0	(1.6)
Transit Capital	12.7	23.7	9.7	(3.0)
Transportation Demand Management (b)	0.2	0.4	0.7	0.5
Non-motorized Transportation (b)	0.2	0.4	0.4	0.2
TOTAL - ALL PROGRAMS	53.7	100.0	48.5	(5.2)

(a) All dollars are in billions

(b) Preliminary estimates

ISSUES IN NEED OF FURTHER STUDY

The RME raises strategy issues that need to be addressed by regional and subregional decision-makers.

1. MOBILITY AND AIR QUALITY

- How can transportation and air quality requirements for mobility and air quality be met under federal and state law to prevent funding sanctions?

2. FUNDING SHORTFALL FOR THE RME

- Given current estimates of a five billion dollar shortfall, how will the region pay for facilities and programs that are needed to meet federal and state mobility and air quality requirements? Can more funds that meet the reasonably funded criteria be identified? As an alternative to budget increases, can facilities and programs be prioritized for funding? Can project costs be reduced?

AMENDMENTS

Recognizing the need for amendments, SCAG will commit to at least one major amendment, if needed, every two years between plan adoption dates. This includes preparation of the conformity statement. Plan amendments that do not require preparation of a conformity statement may be prepared more frequently. The RTP will be certified periodically as required by state and federal law.



AIR QUALITY

- Introduction and Overview
- Air Quality Goal
- Air Districts and Air Basins in the SCAG Region
- Baseline Emissions and Air Quality
- Future Emissions and Air Quality
- Air Quality Improvements Achieved
- Air Quality Standards and Attainment Status
- Air Quality Plans
- Current Strategy for Air Quality Implementation
- Major Air Quality and Strategic Issues and Related Actions

A. INTRODUCTION AND OVERVIEW

The Air Quality chapter is derived from adopted air quality plans of the four air districts in the three air basins within the SCAG region, from other sources available from the air districts, and from California Air Resources Board (ARB) data. The emphasis is on the 1991 air quality plans, but perspective is provided on pre-1991 plans and 1992 air plans prepared to meet the new federal requirements.

The need for the region's forthcoming 1994 federal and state air quality attainment plans and the emerging Federal Implementation Plan (FIP) for the South Coast Air Basin (SCAB) and Ventura County part of the South Central Coast Air Basin (SCCAB) will be based on SCAG's new regional growth forecasts. The current air plans were based on a regional population forecast of 18.3 million, whereas the new air plans will

need to reflect a 20.5 million forecast for the year 2010. SCAG's regional growth forecasts for 2015 will also benefit the SCAB by providing a foundation for meeting the maintenance requirements of the federal Clean Air Act. SCAG and the region's air districts have either entered into or are in the process of developing memorandums of understanding on the use of the regional growth forecasts in the districts' air quality plans. The ozone State Implementation Plans (SIPs) required under federal law are to be completed and submitted to the U.S. Environmental Protection Agency (EPA) by November 15, 1994. The air quality management or attainment plans required under state law are required to be submitted to the California Air Resources Board (ARB) by December 31, 1994. A draft of the FIPs for South Coast and Ventura is due February 15, 1994, with the final plans a year later.

The chapter neither replaces nor modifies the air plans. It does, however, identify federal and state actions on these plans through October 1993, as well as changes to attainment designations, legislation, and federal or state policies that have occurred since the plans were adopted. It also provides quantitative and qualitative information and perspective on past, current, and future air quality and on air quality planning and management in the region. The regions' air quality problem is described, changes in the future are noted, and similarities and differences between the regions' air plans are characterized.

The chapter describes the policy direction of the adopted air plans in terms of goals and implementation strategies. In addition, the chapter identifies seven current air quality and strategic issues that need to be addressed in future air plan revisions. These issues are organized by the following four central themes:

- *How does the region make air quality planning and decision making more efficient?*
- *How does the region balance improving air quality with the need to meet the challenge of increased population and employment growth and a changing economic base?*
- *How can public/private sector partnerships be fostered to meet the challenges of improving air quality, enhancing mobility, conserving energy, and providing for a dynamic healthy economy?*
- *How can the problem of interbasin and intrabasin pollutant transport be dealt with more efficiently and fairly, thus reducing exposure to pollution for all groups?*

The chapter supports two of the goal categories of the Regional Comprehensive Plan. It facilitates an improved *standard of living* by encouraging sustained economic growth, through the balancing of air quality and the economy; and through the creation of new industries and products required to achieve cleaner air; and provides for a better *quality of life* by enhancing/maintaining air quality, and by fostering the provision of adequate transportation for all residents while meeting clean air goals; and promotes *equity* by reducing exposure to pollution for all groups.

The chapter is closely related to the Regional Mobility chapter and many of the issues originally raised in the Air Quality chapter of the Regional Comprehensive Plan Discussion Document are now dealt with in the Regional Transportation Control Measure Programs section of the Regional Mobility chapter. The transportation sector is a major contributor to deteriorating air quality in the region. It also provides an opportunity for the application of new technologies and emerging market mechanisms to help in mitigating this problem.

The Air Quality chapter supports strategies that are compatible with those contained in The Economy chapter, like streamlined regulations, new transportation systems and emerging technologies. Expanding and diversifying the region's economic base is promoted through the development of industrial clusters, an electric vehicle industry, new transportation systems and technology industries, and facilitating the location of "clean industries". Economic transitions and competitiveness are facilitated by actions in the chapter which encourage the streamlining of air district regulations and requirements. Finally, the chapter stresses public-private cooperation to aid business competitiveness, by fostering and supporting public-private joint ventures and partnerships, such as Calstart, Project California, Regional Economic Strategies Consortium and Project Southern California.

The chapter is based on a more detailed technical background document¹ which provides more information on the subjects addressed herein. It includes the complete presentation on the thirty issues which provided the basis for selecting the seven issues presented at the end of this chapter.

B. AIR QUALITY GOAL

The goal of air quality planning in the SCAG region is:

Clean Air in All Parts of the SCAG Region

This goal is the foundational premise on which the region's air quality plans have and will continue to be based. It is also similarly stated or implied in many of the subregional plans.

C. AIR DISTRICTS AND AIR BASINS IN THE SCAG REGION

The four air districts in the SCAG region are the following:

- South Coast Air Quality Management District (SCAQMD).
- Ventura County Air Pollution Control District (VCAPCD).
- Mojave Desert Air Quality Management District (MDAQMD)—formerly the San Bernardino County Air Pollution Control District (SBCAPCD).
- Imperial County Air Pollution Control District (ICAPCD).

¹ Preliminary Draft - Regional Air Quality Management Technical Background Document, SCAG, July 1, 1993.

The California ARB divides the state into air basins based on similar meteorological and geographic conditions, and, to the extent feasible, political boundary lines. The three air basins in the SCAG region are the following:

- South Coast Air Basin (SCAB), wholly within the jurisdiction of the SCAQMD.
- South Central Coast Air Basin (SCCAB), partially the responsibility of the VCAPCD.
- Southeast Desert Air Basin (SEDAB), of which the SCAQMD, the MDAQMD and the ICAPCD each administer a portion in the SCAG region.

The locations and relationships of the four air districts and the three air basins in the SCAG region are shown in Figure 5-1.

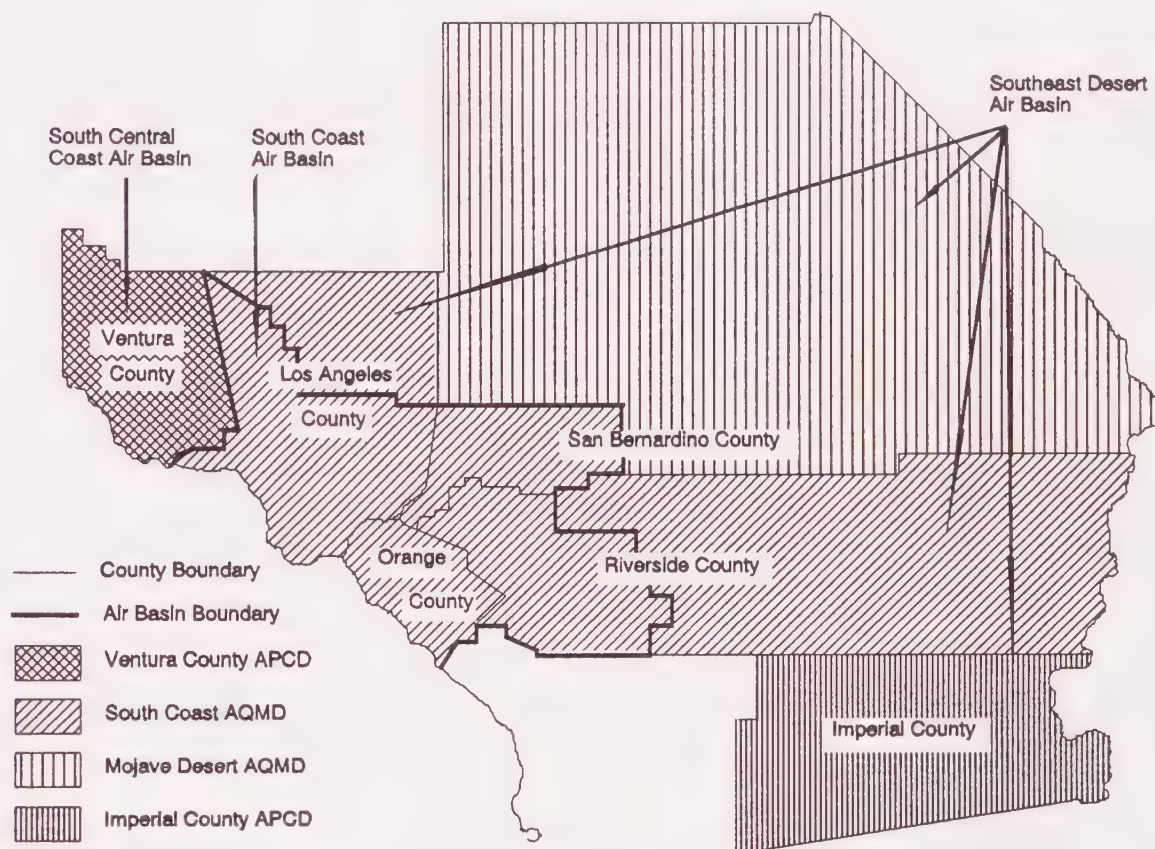
D. BASELINE EMISSIONS AND AIR QUALITY

Air pollutant concentrations result from meteorological conditions and from the amount of emissions produced or transported into an area. With the exception of certain areas with large industrial sources, the amount of emissions is generally proportional to the size of the population in the area. Daily emissions in 1987 which were used for baseline planning in the three air basins, are shown in Figure 5-2. Only limited data exists on emissions from the Los Angeles County portion of SEDAB because no plan was prepared.

Total emissions for 1987 are further detailed in Table 5-1, which identifies stationary (industries, utilities, etc.) and area (consumer products, etc.) source emissions in comparison with mobile (on-road and off-road vehicles) source emissions. The South Coast Air Basin (SCAB) produces far more emissions from automobile and population-dependent usages than the other basins combined. In the SCAG region, the SCAB produces 81 percent of the reactive organic compound (ROC) and 80 percent of the nitrogen oxide (NOx) emissions that combine to form ozone. It also releases 85 percent of the carbon monoxide (CO) emissions. Mobile sources contribute 45 percent of ROC emissions is in Ventura County, 50 percent in SCAB, and 59 percent in the San Bernardino part of SEDAB. Based on inventories in the district plans, the SCAB produces only 47 percent of the region's fine particulate matter (PM₁₀) emissions that result from many activities, including agricultural and construction operations which release large amounts of dust into the air. However, these percentages are misleading since the SCAB emission totals exclude emissions from natural sources. The impact of natural sources is evident in Imperial County, where only three out of 994 tons per day of particulate emissions in the inventory are from automobiles, but 865 tons per day are attributed to natural sources.

Figure 5-1

AIR BASINS AND AIR DISTRICTS IN THE SCAG REGION



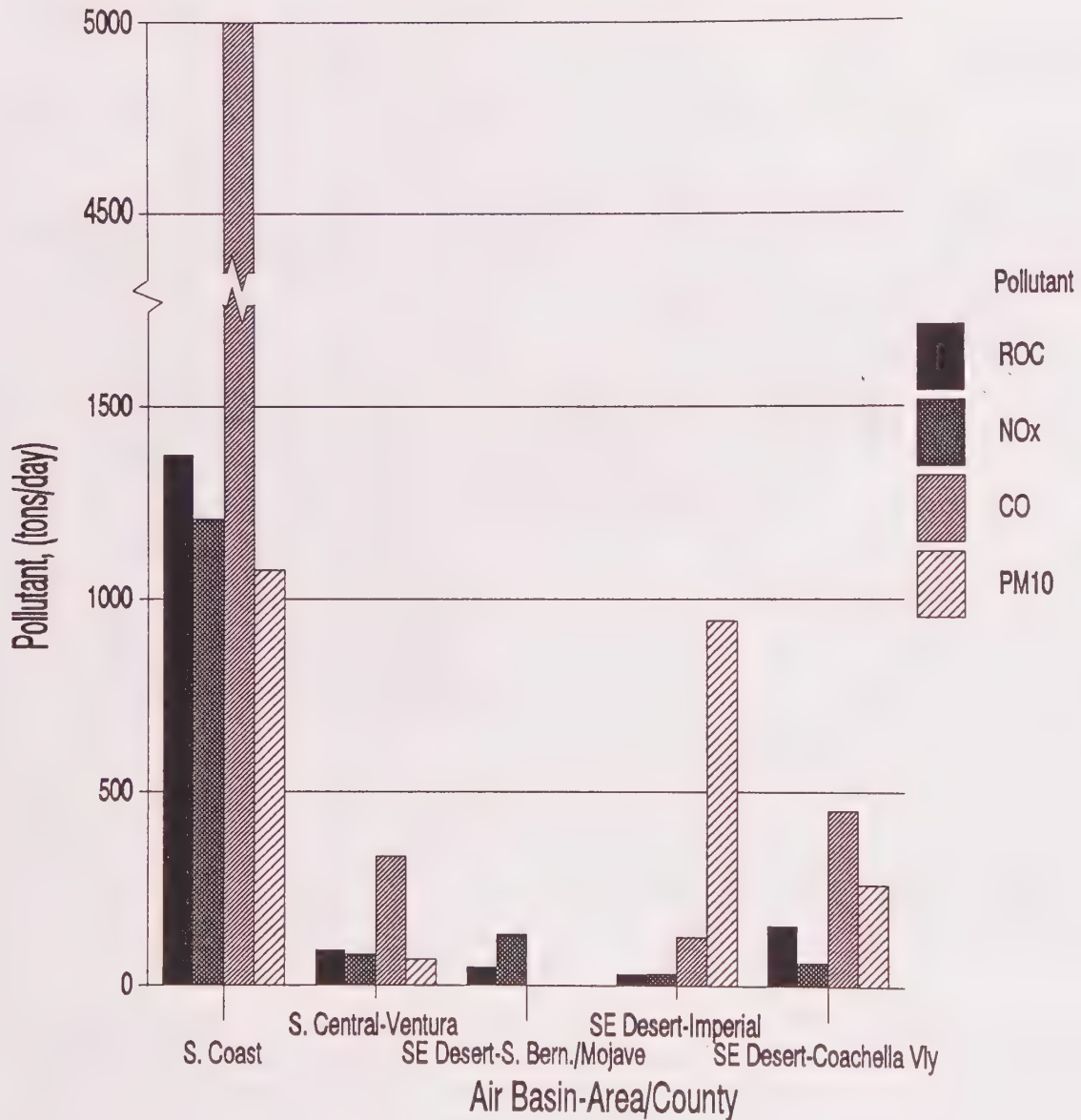
SOURCE: California Air Resources Board, 1992 Air Quality Data Summary

E. FUTURE EMISSIONS AND AIR QUALITY

All district plans project substantial reductions in emissions by 2010. Mobile source controls adopted by the ARB are a key factor in each plan and will, in some cases, result in lower emissions for certain pollutants without new control measures and in spite of large population growth. The SCAQMD projects that ROC emissions in the SCAB will decline by 22 percent in 2010 over those in 1987 without AQMP measures and by 61 percent with new measures. Percentage reductions for other districts are much lower and in some cases there is a substantial increase in emissions. Ventura County shows a 31 percent increase in ROC emissions without controls. Projected emissions for each district in 2010 are shown in Figures 5-3 and 5-4.

Figure 5-2

1987 BASELINE EMISSIONS BY POLLUTANT



Source: 1991 District Air Quality Attainment Plans

**TABLE 5-1
1987 BASELINE EMISSIONS BY POLLUTANT
(IN TONS/DAY)**

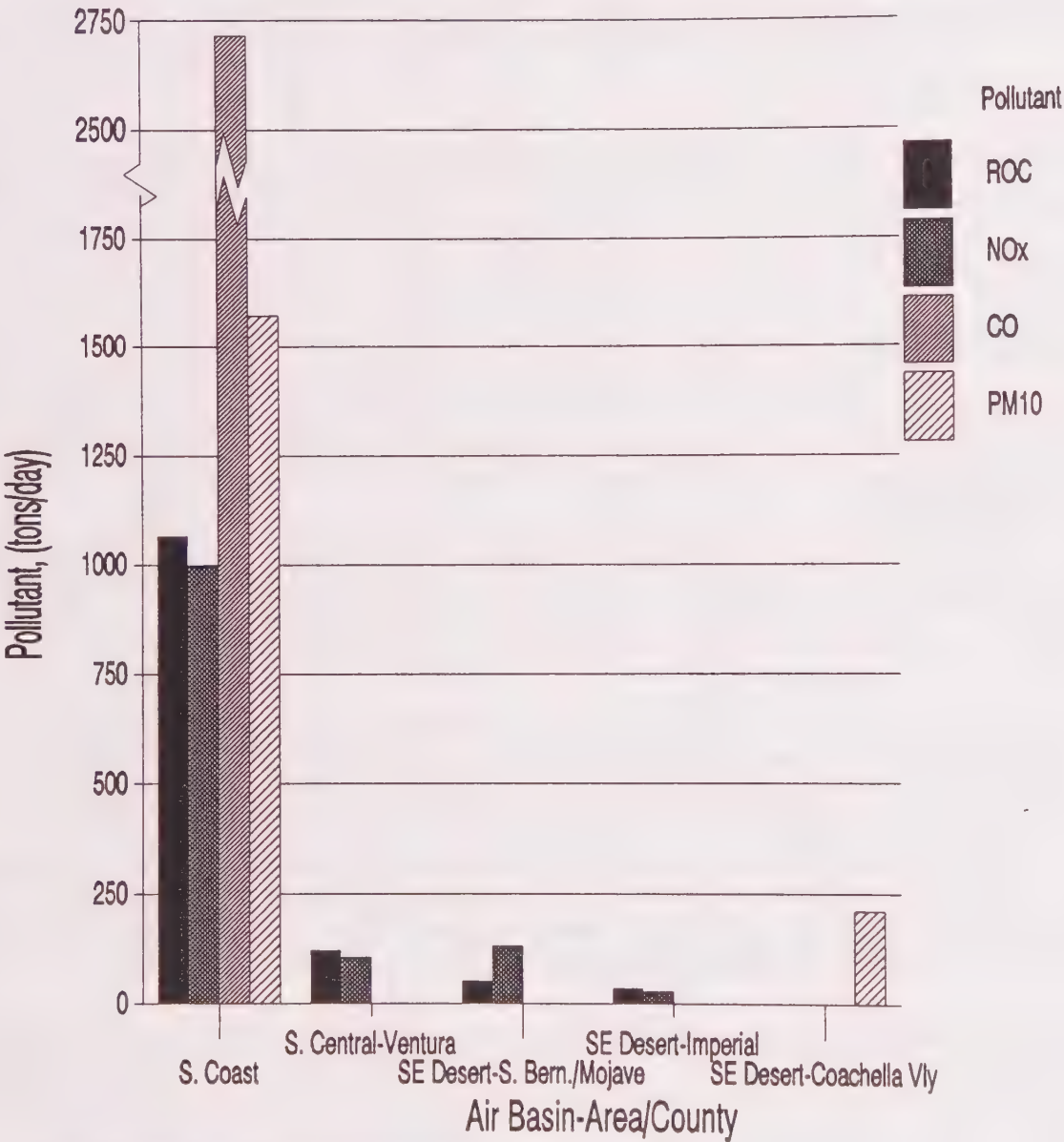
Air Basin and Subarea (Jurisdiction)	Reactive Organic Compounds (ROC)	Nitrogen Oxides (NO_x)	Carbon Monoxide (CO)	Particulate Matter (PM₁₀)
SOUTH COAST AIR BASIN -- Orange and non-desert areas of Los Angeles, San Bernardino and Riverside counties (SCAQMD)				
Total Emissions	1375	1208	4988	1076
Stationary/Area Source Emissions	687	290	99	1006
Mobile Source Emissions	688	918	4889	70
SOUTH CENTRAL COAST AIR BASIN -- Ventura County (VCAPCD)				
Total Emissions	91	81	290	62
Stationary/Area Source Emissions	50	27	32	57
Mobile Source Emissions	41	54	258	5
SOUTHEAST DESERT AIR BASIN				
W. San Bernardino Desert (MDAQMD)				
Total Emissions	50	134		
Stationary/Area Source Emissions	20	62		
Mobile Source Emissions	30	71		
Imperial Co. (ICAPCD)				
Total Emissions	31	32	127	944
Stationary/Area Source Emissions	15	8	35	941
Mobile Source Emissions	16	24	92	3
Coachella Valley--Riverside Co. (SCAQMD)				
Total Emissions	157	62	452	261
Stationary/Area Source Emissions	109	5	23	257
Mobile Source Emissions	48	57	429	4

The forthcoming (draft in February 1994 and final in February 1995) Federal Implementation Plans for the SCAB and Ventura County will be based emissions projections for 2010 and 2005 respectively. The projections which EPA is currently using are based on a SCAG region total of 18.3 million in 2010, not on the new population forecast of 20.5 million, and corresponding employment growth forecasts. These projections are depicted on Figures 5-5, 5-6, 5-7, and 5-8 for volatile organic compounds (VOC) and nitrogen oxides (NO_x). Atmospheric ozone is formed when VOCs react with NO_x in the presence of sunlight. Throughout the Air Quality chapter the term reactive organic compound (ROC) is used. It is similar to EPA's VOC, except that VOC excludes ethane and perchloroethylene.

The Regional Mobility chapter reflects increases in emissions from mobile sources which are reflective of the new population and economic growth forecasts. These emissions projections for 2010 from the "Baseline 1" alternative (automobiles and light duty trucks) are as follows: ROG (109 tons/day), CO (1,779 tons/day) and NO_x (225 tons/day). The corresponding daily vehicle miles traveled for all trips is 430 million. The consequences of these new mobile source emission projections, especially in the SCAB, are illustrative of the challenge faced by policy makers in designing strategies in the 1994 air quality plans.

Figure 5-3

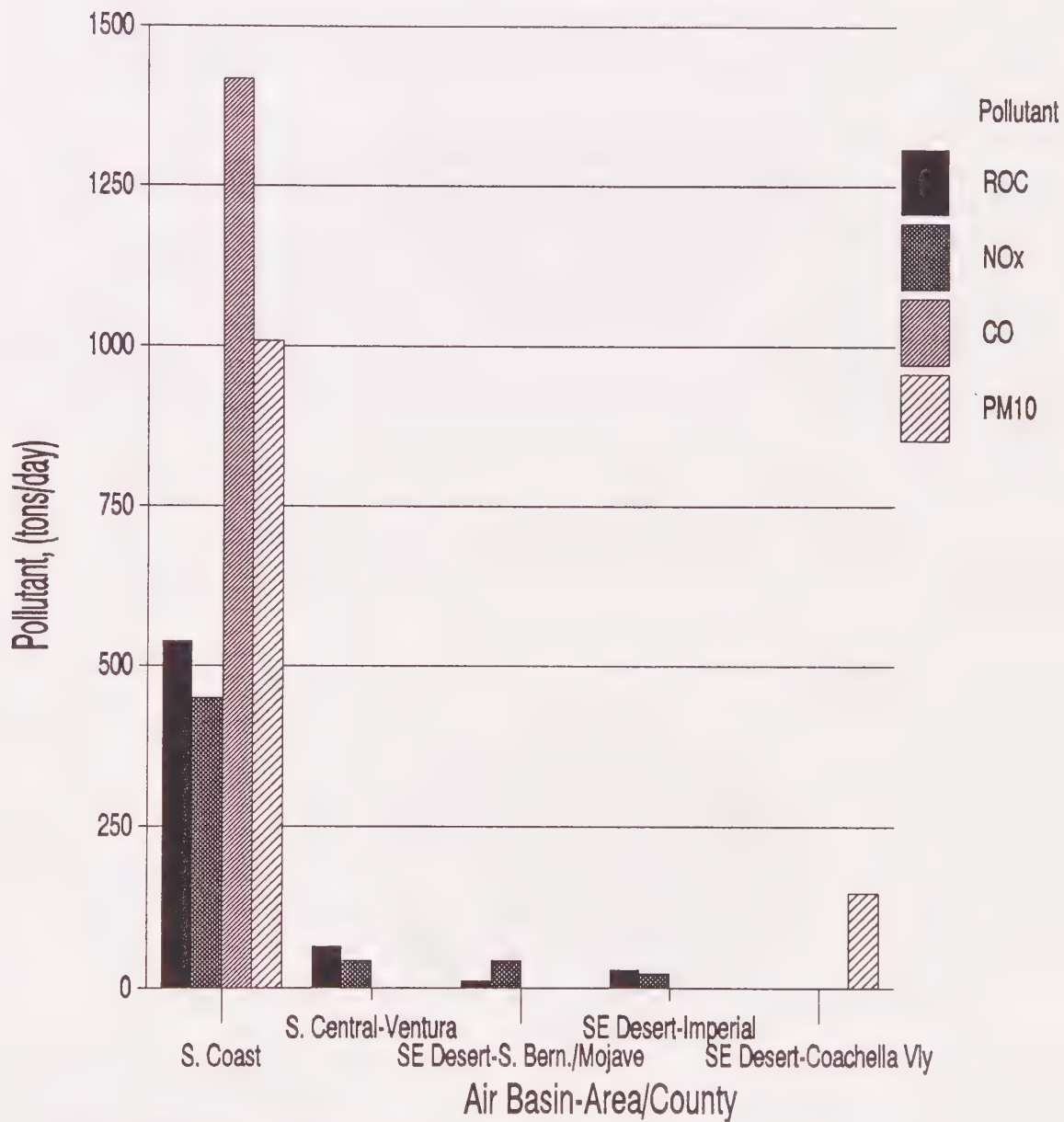
2010 EMISSIONS WITHOUT PLAN BY POLLUTANT



SOURCE: District 1991 Air Quality Attainment Plans

Figure 5-4

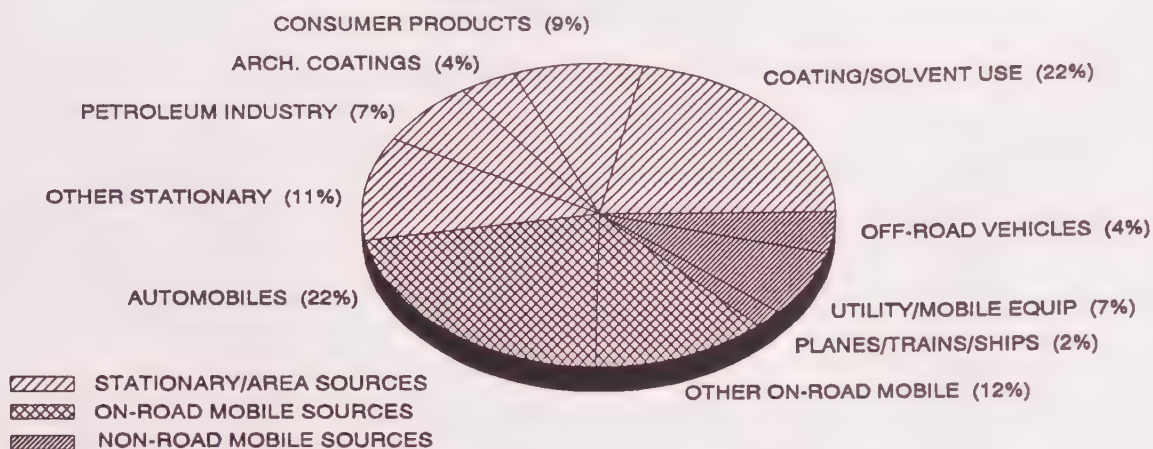
2010 EMISSIONS WITH PLAN BY POLLUTANT



SOURCE: District 1991 Air Quality Attainment Plans

FIGURE 5-5

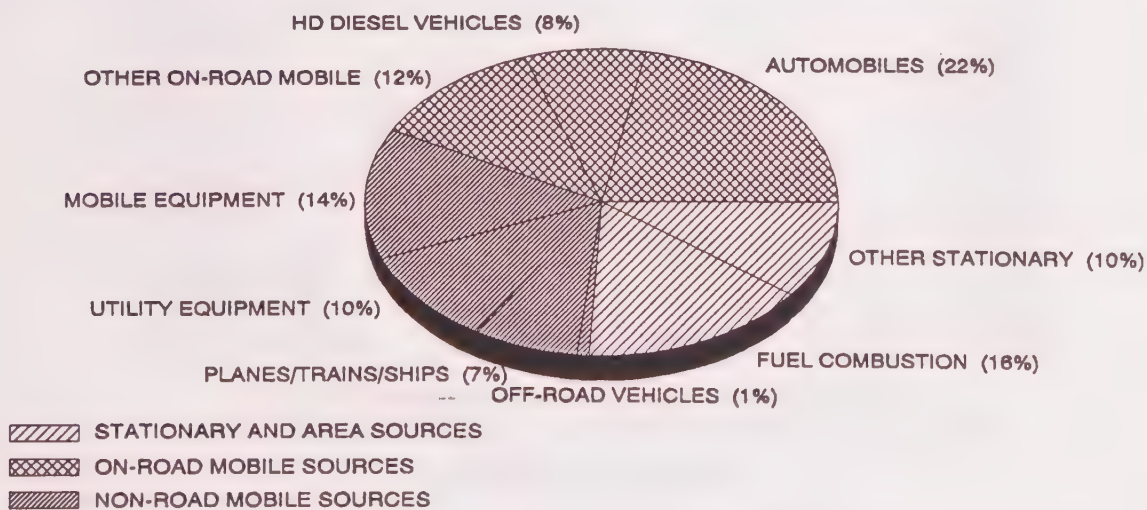
**SOUTH COAST AIR BASIN
2010 VOLATILE ORGANIC COMPOUND EMISSIONS**
TOTAL = 1391 TONS/DAY: ATTAINMENT TARGET = 187 TONS/DAY



SOURCE: Background Data for Federal Implementation Plan for South Coast Air Basin

FIGURE 5-6

**SOUTH COAST AIR BASIN
2010 NITROGEN OXIDE EMISSIONS**
TOTAL = 1102 TONS/DAY: ATTAINMENT TARGET = 399 TONS/DAY

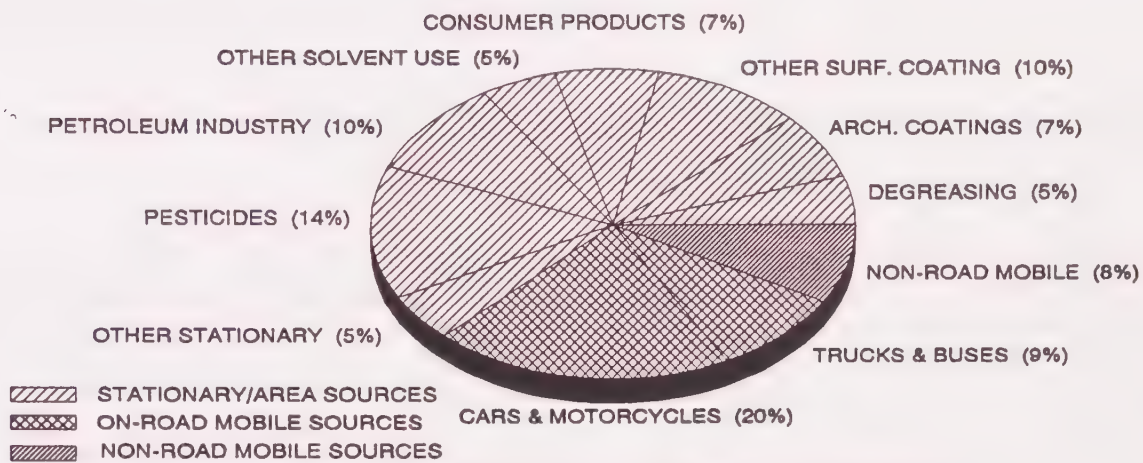


SOURCE: Background Data for Federal Implementation Plan for South Coast Air Basin

FIGURE 5-7

VENTURA COUNTY 2005 VOLATILE ORGANIC COMPOUND EMISSIONS

TOTAL = 103 TONS/DAY: ATTAINMENT TARGET = 57 TONS/DAY

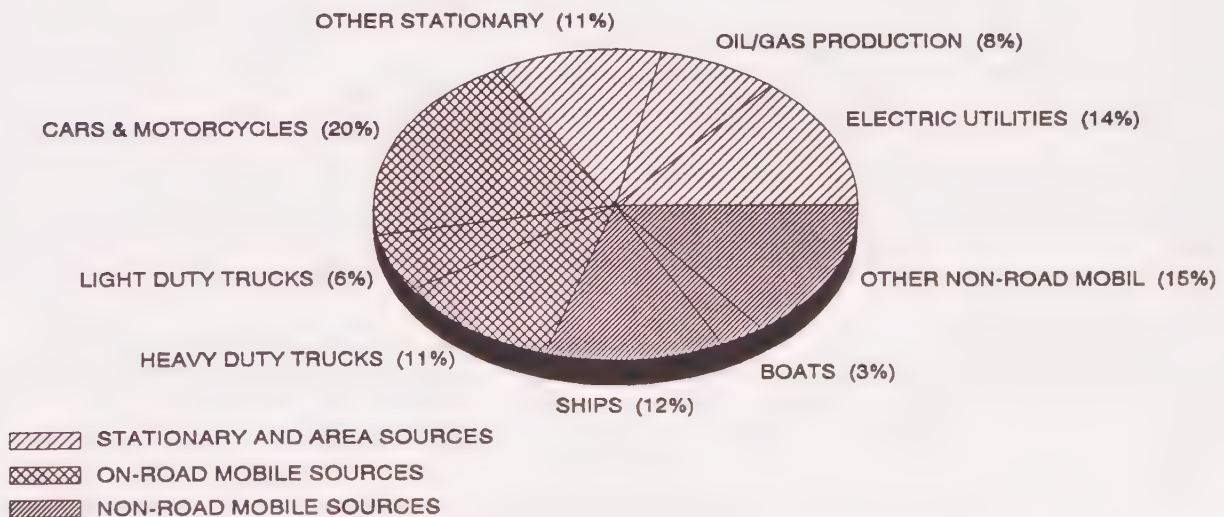


SOURCE: Background Data for Federal Implementation Plan for Ventura County

FIGURE 5-8

VENTURA COUNTY 2005 NITROGEN OXIDE EMISSIONS

TOTAL = 92 TONS/DAY: ATTAINMENT TARGET = 46 TONS/DAY



SOURCE: Background Data for Federal Implementation Plan for Ventura County

F. AIR QUALITY IMPROVEMENTS ACHIEVED

As a result of state and regional emission control programs, peak ozone concentrations, as shown in Figure 5-9, in the SCAG region declined or stayed constant between 1980 and 1990, except in the San Bernardino desert. There, both peak readings and days above the state ozone standard increased slightly during the period as population increased in the eastern portion of the SCAB and in the San Bernardino desert.

G. AIR QUALITY STANDARDS AND ATTAINMENT STATUS

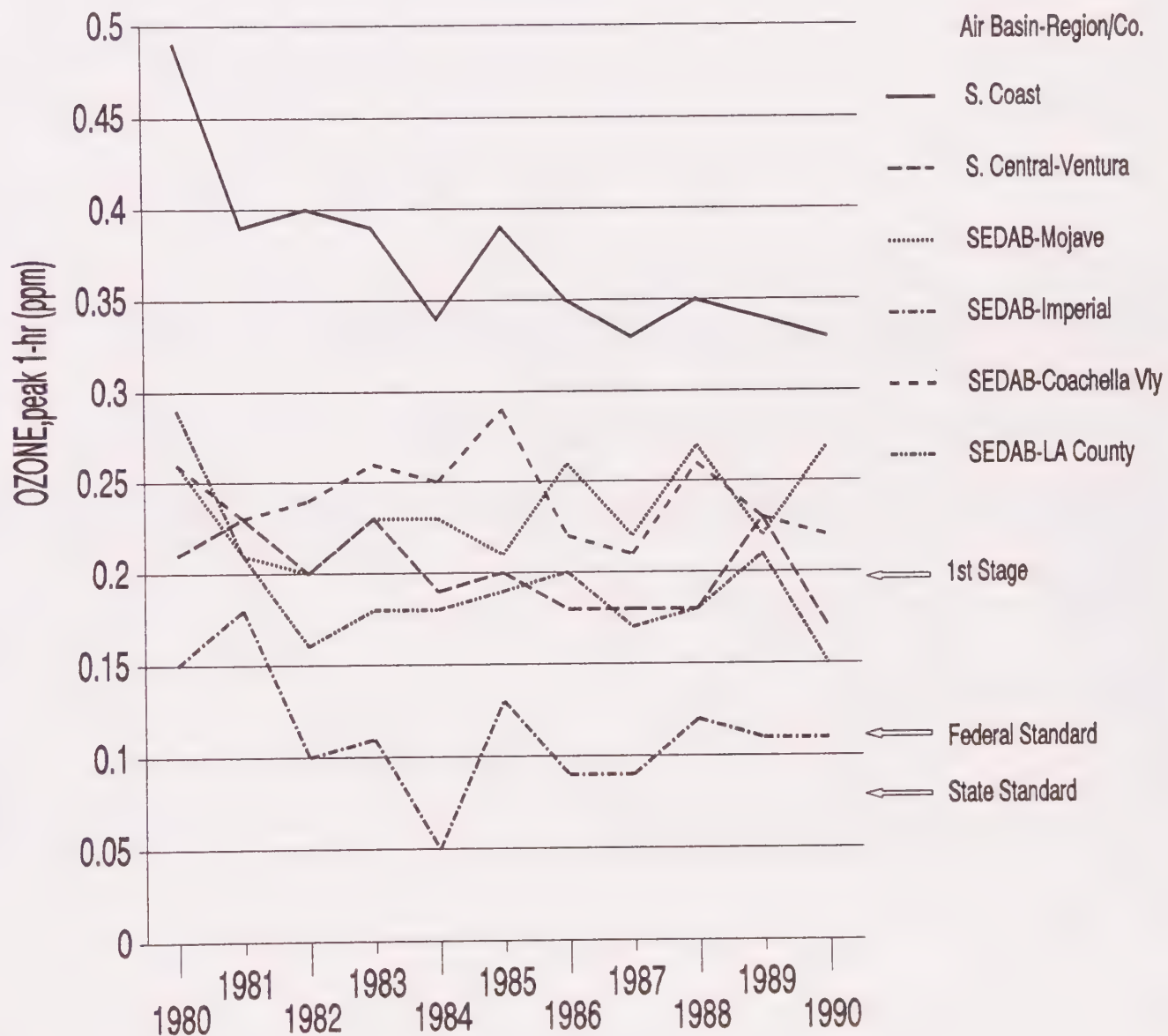
Air quality planning in the region is directed at meeting ambient air standards set by the federal Environmental Protection Agency (EPA) and the ARB. Each plan is designed to meet ambient air quality standards by the deadlines specified in the federal Clean Air Act (CAA) and emission reduction targets of the California Clean Air Act (CCAA). These acts base the extent of required emissions reductions and the length of time to attain standards on the severity of a district's pollution.

Federal and state ambient air standards are set at levels to protect the health of the most sensitive population groups, particularly the elderly, children and people with respiratory diseases. State standards are more restrictive than federal standards. There are federal and state standards for six pollutants and state standards for four others. Four pollutants, Ozone (O₃), Carbon Monoxide (CO), Nitrogen Dioxide (NO₂) and Particulate Matter (PM₁₀), exceed federal and state standards in one or more districts in the region. The standards for these four pollutants are shown on Table 5-2.

TABLE 5-2 AMBIENT AIR QUALITY STANDARDS			
CALIFORNIA		FEDERAL	
Air Pollutant	Standard	Primary	Secondary
Ozone	>0.09 ppm, 1-hr avg	>0.12 ppm, 1-hr avg.	0.12 ppm, 1-hr avg.
Carbon Monoxide	≥9.1 ppm, 8-hr. avg. >20 ppm, 1-hr. avg.	≥9.5 ppm, 8-hr. avg. >35 ppm, 1-hr. avg.	≥9.5 ppm, 8-hr. avg. >35 ppm, 1-hr. avg.
Nitrogen Dioxide	>0.25 ppm, 1-hr. avg.	>0.053 ppm, annual avg.	>0.053 ppm, annual avg.
Suspended Particulate Matter (PM 10)	>30 ug/m ³ annual geometric mean >50 ug/m ³ , 24-hr. avg.	>150 ug/m ³ , 24-hr avg. >50 ug/m ³ annual arithmetic mean	>150 ug/m ³ , 24-hr avg.; >50 ug/m ³ annual arithmetic mean
Note: ppm = parts per million by volume ug/m ³ = micrograms per cubic meter > = greater than ≥ = greater than or equal to			
Source: South Coast Air Quality Management District 1992.			

Figure 5-9

PEAK 1-hr OZONE READINGS for SCAG REGION



SOURCE: California Air Resources Board Annual Reports

The attainment status of state and federal air pollution standards and the timeframes for achieving each standard in each planning area are shown on Table 5-3. The federal Clean Air Act (CAA) divides the nation into five categories for ozone attainment planning purposes, with increasingly longer deadlines for bringing the most severely polluted areas into compliance with the federal standard. The South Coast Air Basin is the only area in the nation in the "extreme" category for ozone. In California, the state's Clean Air Act (CCAA) creates four categories of non-attainment based on ozone concentrations. Although the CCAA is more stringent and requires 5 percent annual reductions in ozone precursor emissions, the act does not set attainment deadlines and contains no penalties for failing to meet its requirements. By contrast, the CAA sets attainment deadlines based on the severity of a basin's air pollution and contains sanctions for failure to comply with various requirements of the Act, as spelled out in guidelines issued by EPA. Both Acts specify the type of controls that are mandatory and those that are optional for regions to meet air quality standards. To meet federal requirements, transportation control measures (TCMs) must be quantifiable, enforceable, replicable, accountable, and have backstop or contingency measures in place.

TABLE 5-3
FEDERAL AND CALIFORNIA AIR QUALITY ATTAINMENT STATUS
BY POLLUTANT

AIR BASIN AND COUNTY	OZONE		CARBON MONOXIDE		PM10	SO2	NO2	SULFATES	LEAD	H2S	VISIBILITY
	Fed.	State	Fed.	State	Fed./State	Fed./State	Fed./State	State	Fed./State	State	State
SOUTH COAST AIR BASIN											
Orange, Los Angeles San Bernardino, Riverside (SCAQMD)	Extreme 2010 ¹	Severe	Serious	NA	Serious/NA	A	NA	NA	A	Unc.	Unc.
SOUTH CENTRAL AIR BASIN											
Ventura (VCAPCD)	Severe 2005 ¹	Severe	A	A	A/NA	A	A	A	A	Unc.	Unc.
SOUTHEAST DESERT AIR BASIN											
W. San Bernardino Desert (MDAQMD)	Severe 2007 ¹	Moderate	A	A	NA ³ /A/NA	A	A	A	A	Unc. ²	Unc.
Imperial (ICAPCD)	Transitional	Moderate	Unc./A	A	Moderate/NA	A	A	A	A	Unc.	Unc.
Coachella Valley (SCAQMD)	Severe 2007 ¹	Under Review	Unc./A	A	Moderate/NA	A	A	A	A	Unc.	Unc.
Antelope Valley (SCAQMD)	Severe 2007 ¹	Under Review	Unc./A	A	a/NA	A	A	A	A	Unc.	Unc.
E. Riverside Desert (SCAQMD)	Unc./A	Under Review	Unc./A	A	A/NA	A	A	A	A	Unc.	Unc.
E. San Bernardino Desert (MDAQMD)	Unc./A	Moderate	Unc./A	A	A/NA	A	A	A	A	Unc.	Unc.

¹ Year by which federal ozone standard must be met.
² Area in northwest San Bernardino County designated as non-attainment hydrogen sulfide area.
³ Moderate for the Searles Valley area, Attainment for the balance of the basin area.
A = Attainment
NA = Non Attainment
Unc = Unclassified

In addition to fixed ozone attainment deadlines of 2005 and 2007 for severe areas and 2010 for extreme areas, the CAA requires TCMs that offset increased emissions from growth in both vehicle trips and miles traveled, and trip reduction programs for employers of 100 or more that increase average vehicle ridership (AVR) by at least 25 percent over existing AVR. The federal Act requires 3 percent annual reductions from 1990 emissions; the CCAA sets 5 percent annual reductions from 1987 emissions as its target. In addition the

CCAA requires the following: reduced population exposure to criteria pollutants; earliest practicable achievement of standards; increase in average commuter ridership of 1.5 persons per vehicle during commute hours by 1999 in severe and extreme non-attainment areas; substantial decrease in growth in passenger vehicle trips and VMT in serious, severe and extreme non-attainment areas; no net increase in mobile source emissions after 1997 in severe and extreme non-attainment areas; cost effectiveness of control measures must be documented; and, public acceptability may be considered as a factor for TCMs. Both federal and state acts require monitoring procedures for compliance and effectiveness.

H. AIR QUALITY PLANS

The current status of SCAG, air district, ARB and EPA approval and the applicable SIPs for federal air quality conformity purposes are shown in Table 5-4.

The table points to the obvious plethora of plans required at both the federal and state levels, within the region's air basins. It addresses only those versions of plans which are currently applicable or have some standing at local, state and federal levels. Under current state law, air quality management or attainment plans must be amended or adopted every three years, with the next plans due by December 31, 1994. The federal CAA requires that specific pollutant attainment plans be adopted and become part of the State Implementation Plan (SIP) on a schedule set forth in the 1990 amendments to the Act. The next federal ozone attainment plan submittals for severe and extreme non-attainment areas are due by November 15, 1994.

If EPA partially approves or disapproves a SIP, federal sanctions can be applied within 18 months of their action. EPA can increase new source offset requirements or cause Federal Highway funds to be withheld. Both conditions apply if the SIP deficiencies are not corrected within six months. For example, in the SCAB the sanctions clock is currently running as a result of deficiencies in the carbon monoxide plan submittal. SIPs can be enforced by citizen suits in federal court.

If SIP deficiencies are not corrected within 24 months, EPA must write a Federal Implementation Plan (FIP). EPA is currently under court order to prepare FIPs for the South Coast Air Basin and the Ventura County part of the South Central Coast Air Basin. Drafts of the FIPs are scheduled for release by EPA in February 1994 with final plans to be adopted in February 1995. The current FIP process in these two air basins overlaps the adoption process for federal ozone attainment SIPs. EPA has indicated that it will replace control strategies in the draft FIPs with legally enforceable strategies in the adopted SIPs. This is consonant with and EPA FIP goal of minimizing federal intrusion into state and local affairs.

**TABLE 5-4
STATUS OF AIR QUALITY PLANS IN SCAG REGION**

Air Basin/Plan/District	SCAG Adoption	District Adoption	ARB Approval	EPA Approval	Current
SOUTH COAST AIR BASIN					
1979 Air Quality Mgmt. Plan (SCAQMD)	10/25/79 ²	01/26/79	05/10/79	01/12/83	Applicable SIP for conformity purposes
1989 Air Quality Mgmt. Plan (SCAQMD)	03/17/89 ²	03/17/89	08/15/89		Under review by EPA as SIP submittal with 1991 AQMP dates
1991 Air Quality Mgmt. Plan (SCAQMD)	06/06/91 ² 08/01/91 ²	07/12/91 08/02/91	10/16/92		Approved by ARB with conditions--ARB decided not to send to EPA for SIP amendment as requested by SCAQMD
1992 Federal Attainment Plan for Carbon Monoxide (SCAQMD)	11/05/92 ²	11/06/92	12/31/92		Under review by EPA as a SIP submittal--Additional information requested in February 1993
1992 Federal Attainment Plan for Nitrogen Dioxide (SCAQMD)	06/06/91 ²	04/03/92	05/15/92		Under review by EPA as a SIP submittal
1992 Federal Attainment Plan for Particulate Matter--PM ₁₀ (SCAQMD)	06/06/91 ²	07/12/91	11/15/91		Under review by EPA as a SIP submittal
SOUTH CENTRAL COAST AIR BASIN					
1982 Air Quality Mgmt. Plan or Ventura County (VCAPCD)	¹	03/23/82	12/31/82	07/30/84	Applicable SIP for conformity purposes
1987 Air Quality Mgmt. Plan (VCAPCD) for Ventura County	¹	07/26/88	05/12/89		No action by EPA
1991 Air Quality Mgmt. Plan for Ventura County (VCAPCD)	¹	10/08/91	08/13/92		Approved With Conditions by ARB only for state purpose
SOUTHEAST DESERT AIR BASIN					
1979 State Implementation Plan (ARB)	⁴	Not Applicable	11/29/79 02/21/79	7/1/81	Applicable SIP for conformity purposes (conditional approval) ³
1991 Air Quality Attainment Plan for Desert Portion of San Bernardino County (SBCAPCD)	⁴	08/26/91	2/18/93		Approved by ARB with conditions for State purposes
1991 Air Quality Attainment Plan for Imperial County (ICAPCD)	⁴	04/06/92	2/18/93		Approved by ARB with conditions for State purposes
1990 State Implementation Plan for PM ₁₀ in the Coachella Valley (SCAQMD)	⁴	04/30/90 12/07/90	11/15/91		Under review by EPA as a SIP submittal
1991 State Implementation Plan for PM ₁₀ for the Searles Valley Planning Area (SBCAPCD, Kern Co. APCD, Great Basin Unified APCD)	⁴	11/25/91			Under review by ARB
1993 State Implementation Plan for PM ₁₀ for Imperial County (ICAPCD)	⁴	09/28/93			Under review by ARB
¹ SCAG designated as co-lead under federal law, but took no action on Plan. ² SCAG adopted TCMs, land use and energy measures. ³ EPA conditionally approved or fully approved all of the 1979 plan, except for the portions of the ozone and Co. plan that pertain to an Inspection and Maintenance program. ⁴ SCAG and Air District are reviewing roles in discussions with ARB.					

I. CURRENT STRATEGY FOR AIR QUALITY IMPLEMENTATION

The current strategies for implementing the region's air quality plans are shown in Table 5-5. Ten strategies are detailed which flow from the four air district's 1991 air quality management or attainment plans. They relate either to technological or behavioral changes, although some require a combination of new technological development and behavioral changes that hopefully will induce individuals, businesses and industries to do things differently.

Attainment strategies differ, depending on the severity of the district's ozone pollution, the type of control program already in place, and whether the program is also tied to achievement of other subregionally defined objectives. For example, the SCAQMD has an identified strategy for addressing the problem of global warming and tropospheric ozone depletion. This area of concern has not as yet been raised as a strategic concern by other air districts.

TABLE 5-5
IMPLEMENTATION STRATEGIES IN EXISTING AIR QUALITY PLANS

POLICY	SOUTH COAST	VENTURA	MOJAVE	IMPERIAL
STRATEGY 1: STATIONARY SOURCES Reduce emissions from point and area sources.				
1.1 Fuel Combustion	■	■	■	■
1.2 Waste Burning	■	■		□
1.3 Agricultural Practices	■	■	■	■
1.4 Surface Coating and Solvent Use	■	■	■	■
1.5 Petroleum and Gas Production and Dispensing	■	■	□	■
1.6 Commercial and Industrial Processes	■	■	⊗/□	
1.7 Construction Practices	■			
1.8 Other Sources	⊗/■	■	◇	□
STRATEGY 2: ON-ROAD MOBILE Reduce emissions from on-road mobile sources (e.g. automobiles, trucks and buses).				
2.1 Buses	■	■		
2.2 Trucks	■	■		
2.3 Design of Vehicles	■	■		
2.4 Inspection and Maintenance	■	◇		□
2.5 Operational Procedures	■	■		
2.6 Alternative Fuels	■	■		◇
2.7 Automobile Buy-Back	■			
STRATEGY 3: OFF-ROAD MOBILE Reduce emissions from off-road mobile sources (e.g. ships, planes, trains and other misc. sources).				
3.1 Marine Vessels	■	■		
3.2 Aircraft	■			
3.3 Rail	■	■		
3.4 Construction/Farm Equipment	■	■		
3.5 Off-Road Motorcycles	■	■		
3.6 Leaf Blowers	■	■		

**TABLE 5-5
IMPLEMENTATION STRATEGIES IN EXISTING AIR QUALITY PLANS**

POLICY	SOUTH COAST	VENTURA	MOJAVE	IMPERIAL
STRATEGY 4: TRANSPORTATION SYSTEMS MANAGEMENT Reduce vehicle emissions through efficient management of the existing transportation system.				
4.1 Traffic Flow (Signal Synchronization and Incident Response)	■	■		□
4.2 Limiting Types of Vehicles During Peak Traffic Hours	■	■		◇
STRATEGY 5: FACILITIES/SYSTEM DEVELOPMENT Create a multi-modal transportation system which results in emissions reductions and facilitates the completion of missing transportation links.				
5.1 High Occupancy Vehicle Facilities	■	■		□
5.2 Enhanced Transit and Rail Services	■	■		
STRATEGY 6: TRANSPORTATION DEMAND MANAGEMENT Reduce emissions by reducing the demand for single occupant vehicle trips.				
6.1 Alternative Travel Modes	■	■	■	□
6.2 Alternative Work Hours/Weeks	■	■	■	
6.3 Telecommunications	■	■	■	◇
6.4 Monetary Incentives and Disincentives	⊗/■			◇
6.5 Employer Trip Reduction	■	■	⊗/■	
STRATEGY 7: GROWTH MANAGEMENT Reduce emissions by guiding the location and timing of development to create a land use pattern which can be efficiently served by a diversified transportation system and which minimizes vehicle miles travelled and reduces vehicle trips.				
7.1 Matching Household Types With Job Opportunities	■	■		□
7.2 Phasing of Development	■	■		
7.3 Location of Development	■	■		□
STRATEGY 8: LAND USE DESIGN Reduce emissions by encouraging land uses and design practices which facilitate changes in tripmaking behavior and which will lead to a reduction in vehicle trips and vehicle miles traveled.				
8.1 Review/Monitoring/Permitting/Analysis	■	◇	■	★
8.2 Development Standards/Design Criteria	■	■		□
STRATEGY 9: GLOBAL WARMING/OZONE DEPLETION Reduce emissions which deplete tropospheric ozone or contribute to global warming				
9.1 Refrigerants	■			
9.2 Waste Disposal	■			
9.3 Industrial/Commercial Processes	■			
STRATEGY 10: TOXICS Reduce toxic and hazardous emissions				
10.1 Land Use	■			
10.2 Accidental Releases	■			
10.3 Industrial/Commercial Processes	■			
Legend:				
★ = Modifications to Existing Program. □ = Program(s), No Implementation Commitment(s). ■ = Program(s), With Implementation Commitment(s). ⊗ = Contingency Measure(s). ◇ = Future Study Measure(s).				
1 = For Ventura County APCD a number of enhancements to rule 210 are proposed as further study measures.				

Since 1989, the California ARB has adopted new standards that significantly lower emissions from new vehicles, including requirements for a fixed percentage of all new light-duty vehicles sold in California after 1998 to be low- or zero-emission vehicles. In addition, ARB has set standards for "clean" gasoline in future years and for reformulated gasoline to be sold in winter months in carbon monoxide nonattainment areas.

All four air districts have adopted some or all of these stationary and area source measures scheduled for implementation in their 1991 plans. An employer rideshare program was adopted by Ventura County in 1989 and one was recently adopted on a trial basis for the Mojave Desert part of the Southeast Desert Air Basin.

The SCAQMD has undertaken an intensive effort to develop a market-incentives program to replace AQMP measures and existing rules covering sources that emit more than four tons a year of reactive organic compounds, nitrogen oxides or sulfur oxides. Under this program, known as Regional Clean Air Incentives Market or RECLAIM, sources will be able to reduce emissions by an annual reduction target equivalent in the aggregate to all stationary source measures for these sources in the 1991 AQMP through installing control equipment, shutting down equipment, or buying surplus reduction credits from other sources in the program that have installed or shut down equipment. In July 1992, the SCAQMD Board amended the 1991 AQMP to place 20 stationary source measures in a "contingency" category and to substitute RECLAIM as an AQMP measure. The SCAQMD Board adopted the RECLAIM rules for NO_x and SO_x sources in October 1993.

Market-based TCMs are currently under study and in use. SCAG's Regional Council in early 1993 established a Market Incentives Task Force to develop recommendations concerning possible market based solutions to regional transportation and air quality problems for the RCP. SCAB also established an Advanced Transportation Technologies Task Force. The task force has structured an extensive program to get answers on the future of advanced transportation technologies to help meet the region's mobility, air quality and economic needs. The task force's work is closely coordinated with CALSTART, a consortium developing an electric vehicle industry in the southland, and with Project California, a statewide group of business, industry and government leaders working on stimulating an advanced transportation technologies program in the state.

SCAB's 1992 Carbon Monoxide Plan, based on the 1991 AQMP, reconfigured TCMs and included them only as contingency measures that would be available to supplement the other measures in the plan, which included oxygenated fuels, improved certification requirements for new vehicles, motor vehicle buyback program, and low emission new fleet vehicles. The plan found that these other measures would result in attainment of the federal CO standards. TCMs were included as contingency measures that local governments could adopt through ordinances or other enforceable mechanisms. A provision was included for backstop actions by the SCAQMD in the event that these TCMs were needed for CO attainment, but actions by local governments were not sufficient. The CO plan will be reevaluated and revised to reflect new growth and VMT forecasts as part of the work on the 1994 air quality plan.

TCMs are still required by both the state and federal Clean Air Acts as part of ozone control strategies in severe and extreme non-attainment areas. The 1991 South Coast AQMP established a Transportation Control Measures Advisory Working Group to address implementation issues and revise the TCMs for the 1994 update of the AQMP. In mid 1993 the working group and subgroups were replaced with a TCM Policy Committee and TCM Technical Advisory Group. The policy committee will provide input to SCAG's Transportation and Communication Committee and the District's On-Road Transportation Committee. The Ventura and Mojave districts are utilizing existing committee structures to evaluate the extent to which TCMs will be included in the forthcoming 1994 plans.

J. MAJOR AIR QUALITY AND STRATEGIC ISSUES AND RELATED ACTIONS

A number of issues regarding air quality and related strategic issues in the region remain unresolved or have emerged as a result of changing conditions or new regulations imposed since the last plan update in each district. Thirty major issues were derived from reviewing current plans; experience reported by each district in implementing the plans; experience by Caltrans, local governments, county transportation commissions, private-sector organizations and others in implementing plan provisions, and consideration of other regionwide concerns identified by SCAG as impacted by air quality planning and implementation. This chapter addresses the seven key issues which flow from four central themes. A number of other air quality issues were discussed in the Regional Comprehensive Plan Discussion Document which pertain to transportation and land use control measures. These and related issues are dealt with in the Regional Mobility chapter.

1. CENTRAL THEME NO. 1 -- PLANNING AND REGULATORY SIMPLIFICATION

How does the region make air quality planning and decision making more efficient?

a. State and Federal Plan Submittals and Standards

Issue:

How can the timing of multiple mandated federal and state air quality plan submittals be better coordinated in order to meet existing targets, and what actions can be taken to resolve conflicting federal and state ambient air quality standards?

Actions:

- The region's air districts and SCAG should work with ARB and EPA to develop a coordinated game plan for resolving the federal/state plan submission problems and standard differences and in identifying socioeconomic considerations². Local jurisdictions (cities, counties, county transportation commissions) participation should be sought in the negotiations to resolve conflicting federal and state submittal requirements and ambient air quality standards. First priority should be given to working out a solution within the context of existing state and federal law. If this is not possible, consideration should be given to modifying federal or state law.
- The Federal Implementation Plans and State Implementation Plans required air quality management and attainment plans should be closely coordinated. A special summit of federal, state, regional and local policy makers should be convened to assure that plan submittals and standards are agreed to by all parties.

² Revised to reflect subregional input from SANBAG, North Los Angeles County, CVAG and Westside Cities.

- SCAG should work with other regional agencies having air quality implementation responsibilities to 1) seek legislation which makes funding available in proportion to the mandated requirements placed on local governments to reduce target pollutant emissions; and 2) achieve a coordinated approach to air quality mandates to local government, with the provisions of that approach to be incorporated into the 1994 Air Quality Management Plan updates³. This coordinated approach must identify funding and priority actions to meet the requirements of the Federal Intermodal Surface Transportation Efficiency Act and Clean Air Act. In addition to federal Congestion Mitigation and Air Quality (CMAQ) and Surface Transportation Program (STP) funds, Caltrans state funds and local transportation funds should be coordinated to provide funding for control strategies.
- SCAG should work with regulatory agencies to integrate requirements and establish clear roles and responsibilities for regulatory agencies, and thereby improve local government's ability to first understand its obligations and then to act on them⁴.

b. Streamlining Air District Regulations and Requirements

Issue:

How can local air districts streamline their rules and regulations, and minimize unnecessary bureaucratic requirements⁵?

Actions:

- Air districts should devise means for easing the burden of regulatory compliance on business, industry and local government. Programs like SCAQMD's "business retention" and "small business assistance" programs should be continually monitored and streamlined. The other air districts should consider these types of programs as appropriate.
- Air districts should work together to develop more coordinated approaches, including parallel rules and regulations. This can help to minimize the adverse impacts on businesses, industries and local governments. It can also work toward leveling the playing field throughout the SCAG region.
- The North Los Angeles County subregion intends to continue to pursue investigation of whether and how to change the existing air quality jurisdictional arrangement for North Los Angeles County⁶.

³ Action recommended by South Bay subregion.

⁴ Action recommended by South Bay subregion.

⁵ Based on recommendation of the SANBAG subregion and supported by recommendations of the Realtor's Committee on the Air Quality Management Plan.

⁶ Action recommended by North Los Angeles County Subregion.

c. Regulation and Alternatives

Issue:

What mix of regulation, market incentives and market/service delivery options should be advocated to implement TCMs in the South Coast Air Basin?

Actions:

- Determine specific programs and associated actions (e.g., indirect source rules, enhanced use of telecommunications, provision of community-based shuttle services, provision of demand management based programs, or VMT/emission fees) so that options can be assessed.
- Identify specific implementation conditions for each of the three options (e.g., funding, implementation processes, potential impacts).
- Balance strict legal enforceability requirements with other implementation factors.
- Continue to assess the relative advantages and disadvantages of regulatory, market incentive and market/service delivery approaches.

2. CENTRAL THEME NO. 2 -- REGIONAL AIR QUALITY/ECONOMIC BALANCE

How does the region balance improving air quality with the need to meet the challenge of increased population and employment growth and a changing economic base?

a. Balancing Air Quality and the Economy

Issue:

To what extent and by what means can the impacts of air quality standards be achieved without adversely affecting local and regional economic conditions⁷?

Actions:

- The region's air districts should pursue a hybrid approach to balancing air quality and the economy. This approach should seek an effective balance between command and control and market strategies.
- In the process of seeking to balance air quality and the economy, air districts are encouraged to take the following initial steps:

⁷ Revised to reflect subregional input from SANBAG, North Los Angeles County and Westside Cities.

- Maintain current regulations and implement new control measures in order to comply with current mandates, while continuing to devise methods of easing the burden of compliance by making assistance available to businesses and streamlining procedures, sharing such methods among districts.
- Continue to explore the positive and negative impacts of air quality programs on the economy, documenting and sharing the results of that effort among districts in the region.
- Devise a detailed action plan, based on existing reports, which implements workable approaches in the current air quality plan and provides the basis for effective plan amendments.
- Continue to develop and refine proposed market incentive techniques, such as parking management, price incentives, vehicle registration fees to benefit air quality, and implementation prototypes for congestion and emission fees⁸.
- Continue to promote and support the creation of new industries and products required to achieve cleaner air. Examples of this ongoing effort by SCAQMD's Technology Advancement Office include: "Living Machine" biofilter unit; low pollution hot water heater; near-zero emission fuel cell battery hybrid transit bus; and, methanol and natural gas heavy duty construction vehicles.
- Continue efforts emanating from the Economic chapter of the RCP, in consultation with business and industry groups like: development of industrial clusters in the SCAG region, like the apparel, entertainment and the arts, tourism, environmental protection technology, foreign trade and advanced transportation technologies industries; facilitate the creation of an electric vehicle industry (CALSTART) and new advanced transportation systems and technology industries (Project California); and development of public-private joint ventures, like a Regional Economic Strategies Consortium and "Project Southern California:" linking employment needs with transportation requirements in the SCAG Region⁹.
- Support actions to facilitate the locating of "clean industries" in the region, like the efforts of SCAQMD to identify existing clean industries, better understand the economic benefits of clean industries, and the development of incentives to facilitate the location of clean industries in the region.
- SCAG and the air districts should involve private sector interests in all phases of the decision making process. Without business and industry involvement, no form of regulation or economic development will provide the benefits intended¹⁰.
- Cal EPA, ARB and EPA should continue to have early involvement in the air quality plan development process to enable them to better understand and respond to economic considerations¹¹.

⁸ Revised to reflect recommendation of SCAG's Energy and Environment Committee.

⁹ Revised to reflect recommendations of SCAG's Energy and Environment Committee.

¹⁰ Action recommended by Realtor's Committee on the Air Quality Management Plan.

¹¹ Action recommended by the City of Los Angeles subregion.

- SCAG and the regions air districts should continue to maintain Memoranda of Understanding detailing cooperative planning relationships and requiring that regional growth forecasts be used in the development of all air district plans¹².
- The region should consider the implementation of certain transportation control measures at the regional level to minimize unequal economic impacts on business between local jurisdictions and impacts on local governments¹³.
- Air districts in their regulatory development process should consider strategies that would not restrict economic growth and local control¹⁴.
- SCAG and air districts should document and disseminate case studies where actions taken for air quality purposes are also beneficial for economic development¹⁵.

b. Air Quality, Land Use, Transportation and Economic Relationships

Issue:

How can air quality considerations be more consistently taken into account in land use, transportation and economic decisions?

Actions:

- Plans at all levels of government (regional, air basin, county, subregional and local) should consider air quality, land use, transportation and economic relationships. This suggests that land use, transportation, and air quality policies are, at the very least, not in conflict. However, creating consistent policies is rarely the same thing as providing synergistic, mutually supportive direction in a policy document.
- SCAG and the air districts should develop guidance to local governments on designing land use, transportation and economic development patterns to consider air quality¹⁶.

¹² Supportive of actions by Westside Cities subregion.

¹³ Action recommended by the City of Los Angeles subregion.

¹⁴ Based on actions recommended by the San Gabriel Valley subregion.

¹⁵ Action recommended by SANBAG subregion.

¹⁶ Action recommended by SANBAG subregion.

3. CENTRAL THEME NO. 3 -- PUBLIC-PRIVATE SECTOR PARTNERSHIPS

How can public/private sector partnerships meet the challenges of improving air quality, enhancing mobility, conserving energy, and providing for a dynamic healthy economy?

a. Public/Private Partnerships

Issue:

How can SCAG and the region's air districts encourage existing and stimulate additional public/private partnership involvement in implementing air plans, improving air quality, and increasing the public's knowledge of air quality problems and potential solutions?

Actions:

- SCAG and the region's air districts should continue to facilitate the development of public/private partnerships to help implement air quality plans, thereby improving air quality. Facilitation can include assistance in funding, technical assistance in partnership formation, or general encouragement of these types of efforts. Each air district is encouraged to develop its own unique approaches to working with the diverse special interests in their area. The following options only illustrate the types of approaches that have been developed in the different parts of the region:
 - Public/Private Sector Task Force (Example -- Southeast Los Angeles County Air Quality Consortium Public/Private Sector Task Force).
 - Private Sector Technical Information Centers (Example -- Southern California Edison's Customer Technology Application Center in Irwindale).
 - Non-Profit Consortia (Example -- CALSTART, a public-private partnership of utility, industry, government, labor and environmental organizations, with a mission of helping to establish an advanced transportation industry in California by producing an electric vehicle).
 - SCAG Advisory Groups (Example -- Regional Advisory Council, a public/private body which addresses issues of regional concern and provides guidance to SCAG on these matters).
 - Environmental Consortia (Example -- Think Earth environmental consortium, developing an integrated environmental curriculum for primary grades, with the assistance of VCAPCD).
 - Statewide Consortia (Example -- Project California, an effort of business, industry, university and government leaders, under the auspicious of the California Council on Science and Technology, to promote advanced transportation technological solutions to air quality, energy, transportation, growth and economic problems of the state).

- Joint Ventures (Example -- CSCAPE, an effort by the Environmental Defense Fund and the Regional Partnership to help clean Southern California's air and protect its economy).
 - Special Commissions on Major Air Quality Concerns (Example -- Air Quality and the Economy Commission, set up by SCAQMD to look at the impact of air quality regulations on the economy).
 - Chamber of Commerce Committees (Example -- Los Angeles Chamber Special Committee on Air Quality, set up to provide guidance on air quality issues like inspection and maintenance and the Federal Implementation Plan).
 - Advisory Committees (Example -- Environmental Advisory Committee, set up by SCAQMD to bring environmental groups and interests together to provide guidance to decision making).
 - Inter-disciplinary Groups (Example -- Sequoia Group, involving a small number of top management representatives from businesses, universities, environmental and government organizations that crafted a broad policy approach to addressing air quality, economic and transportation issues).
- Private sector participants should become more involved in the Regional Advisory Council (RAC) to help assure business, industry and environmental concerns are reflected in the air quality planning and regulatory process.

4. CENTRAL THEME NO. 4 -- REDUCING EXPOSURE TO POLLUTION

How can the problem of interbasin and intrabasin pollutant transport be dealt with more efficiently and fairly, thus reducing exposure to pollution for all groups?

a. Coordination to Deal With Interbasin and Intrabasin Pollutant Transport

Issue:

How can the complex problems of interbasin and intrabasin pollutant transport be better understood and dealt with by all affected parties¹⁷?

Actions:

- Local air districts should request monitoring and modeling assistance from ARB to better define the source and amount of transported pollution and the meteorological conditions which affect transport in order to refine control strategies in both source and receptor areas.
- Local air districts, SCAG and ARB should establish technical, and if necessary, policy body coordination mechanisms to facilitate defining the source and amount of transported pollutants, and to arrive at mutually responsive control strategies.

¹⁷ Revised to reflect subregional input from SANBAG, CVAG, IVAG, North Los Angeles County, and similar recommendations by the County of San Bernardino and the Mojave Desert Air Quality Management District.

- Air districts wherein significant intrabasin pollutant transport controversies exist, should work cooperatively with SCAG, subregions and local governments to develop a clearer understanding of emissions transport and control strategies.
- EPA and ARB should work cooperatively to assess the pollutant transport impact on Imperial County from Mexico and help ICAPCD and Mexican air pollution officials develop effective control strategies.

b. On-Road Mobile Source Emissions Budgets

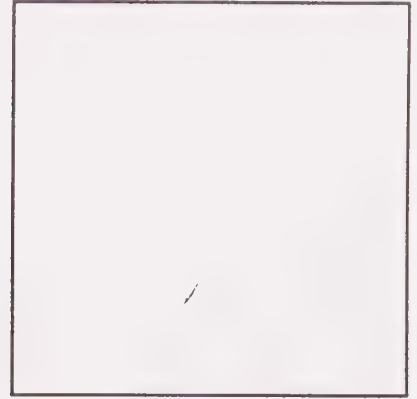
Issue:

How should air quality attainment plans (which need to be approved by EPA) best provide for on-road mobile source emissions budgets which the Regional Transportation Plan must not exceed as a part of the allowable emissions within a basin in order for a positive conformity determination to be made?

Actions:

- Since it is not known what the allowable emissions will be and the only approved (or partially approved) State Implementation Plans were prepared over ten years ago, SCAG and the air districts, in consultation with local governments and county transportation commissions, need to cooperatively develop allowable on-road mobile source emissions budgets for air basins.
- Planning efforts by SCAG and the air districts on the 1994 air plans need to address the dilemma of how to proceed with transportation control measures, market based control strategies and the impact of technological controls, in the context of developing agreed upon allowable on-road mobile source emissions budgets. In the South Coast Air Basin the implications of backstop rules need to be addressed within this context.

Chapter 6



HOUSING

- Introduction
- Regional Housing Goals
- Needs, Strategies and Recommendations

A. INTRODUCTION

Southern Californians live in a variety of communities. Each community has a separate history, development pattern and vision of future growth. They also offer a distinct set and mix of housing opportunities that evolve and change in response to broad economic and demographic changes. Economic conditions provoke changes in migration, immigration, householder growth, income level, and ownership rate. Demographic changes affect population growth, age-related housing demands, average household size, household composition, and rates at which adults will enter the market. A changing ethnic and racial mix of households underlies these shifting demands. Balancing the demands of growth and change on the existing built and natural environments presents complex public policy choices and trade-offs for local governments including those governments working cooperatively on mutual problems such as housing Southern Californians.

1. THE INTENSIFYING CRISIS IN HOUSING

Many Southern Californians are facing dismal housing choices because people are paying a higher proportion of income for shelter. The incidence of families and individuals paying more than one-third of income for shelter increased from one-in-four in 1980 to one-in-three in 1990. To keep housing costs down, many large renter households and immigrants break prevailing American occupancy standards and cram into units. Where in the past this was limited to run-down urban core areas, it has now spread to smaller cities and inland areas.

The problem is the stock of affordable housing has not kept up with population growth and the needs of the work force. Year after year, the affordable housing deficit grows, the economic competitiveness of the region suffers, and environmental problems increase as the search for lower-cost homes sends commuters deeper into sensitive geographic territory on the urban edge of the region. The onset of a deep and lingering recession in 1990 has resulted in a cascade of values and an increase in misery. Prices are still too high and the dimensions of the crisis have broadened to include households with above moderate incomes as well as the poor. A look back is helpful to track the crisis and plot a course of future action.

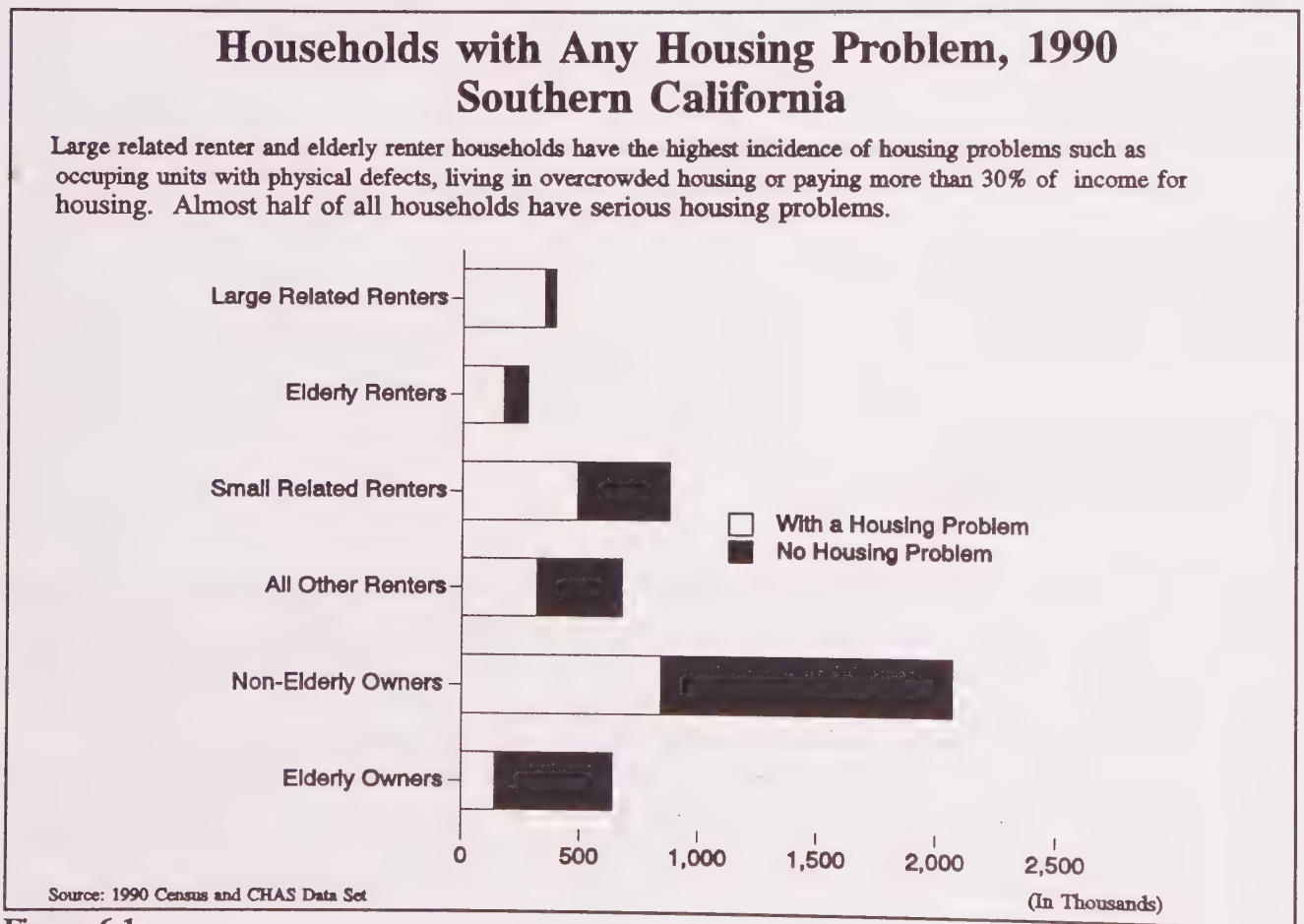


Figure 6-1

a. Before the Recession, a review of the 1990 census:

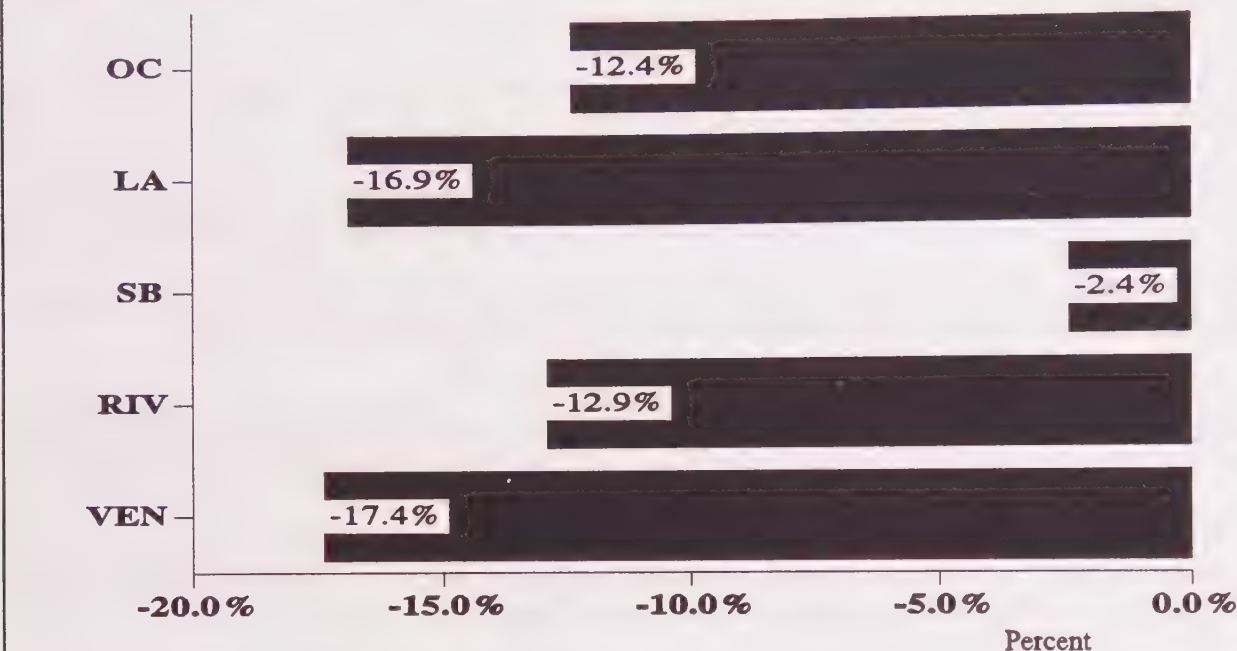
- About 2.3 million households—one of every two households in Southern California—had a housing-related problem such as living in an overcrowded unit, occupying a substandard unit, or paying more than 30 percent of income for housing (*see* Figure 6-1).
- At 54 percent, the home-ownership level was only slightly above the level of households with housing problems. Southland ownership achievement was also 10 percentage points below the national average (64 percent).
- Home prices and rents soared above increases in consumer income, while the magnitude of the problem of homelessness reached a level not seen since the 1930s.
- Housing costs in Southern California were far above state and national levels and were in excess of housing costs in neighboring states competing for economic growth such as Arizona and Nevada.
- Sharp differences in housing costs between metropolitan areas and central cities and suburbs led to the continued concentration and isolation of poor households in inner cities.
- While the region is home to 6 percent of the nation's population, it houses 20 percent of all foreign-born residents living in the U.S. Many do not accept the prevailing American standards for overcrowding and cram into units to save money because shelter expenses are at such a high price.
- While lesser cost inland areas had 15 percent of all housing in the region in 1980, they accounted for 54 percent of all housing growth, continuing a pattern of urban development with serious environmental consequences. In 1990, these areas had 19 percent of all housing in the region.

b. During the Recession, 1990 to 1993

- Population growth has grown much faster than housing production. Between 1990 and 1992, almost 1 million people were added to the region, while less than 200,000 units were built. In 1993, less than 40,000 new building permits will be issued, while another 250,000 people will be added, primarily through births and immigration from abroad.
- More than 500,000 jobs have been lost, primarily high-paying jobs in defense-related industries and construction. Unemployment is at record-high levels and the economic forecast sees a significant proportion of new jobs in low-wage occupations.
- Almost all communities in the Southland experienced a decline in home values (*see* Figure 6-2) and rents and an increase in vacancies. But still, home costs are among the highest in the nation.
- While land cost as a component of total housing costs in 1992 was about 20-to-25 percent in the nation, it was about 35 percent in affluent areas and about 20 percent in distressed areas of the Southland. High land costs are a distinguishing feature of high housing costs in Southern California.

MEDIAN VALUE PER SQUARE FOOT OF RESALE HOMES

Between July 1990 and July 1993, all counties suffered a drop in median price per square foot of resale homes as the demand for homes fell across the region due to the recession. The hardest hit areas were Ventura and Los Angeles Counties. Nearly 94% of all identifiable communities in Southern California experienced a loss in value, with expensive areas seeing the biggest decline.



Source: Dataquick Information Systems

10-5-93

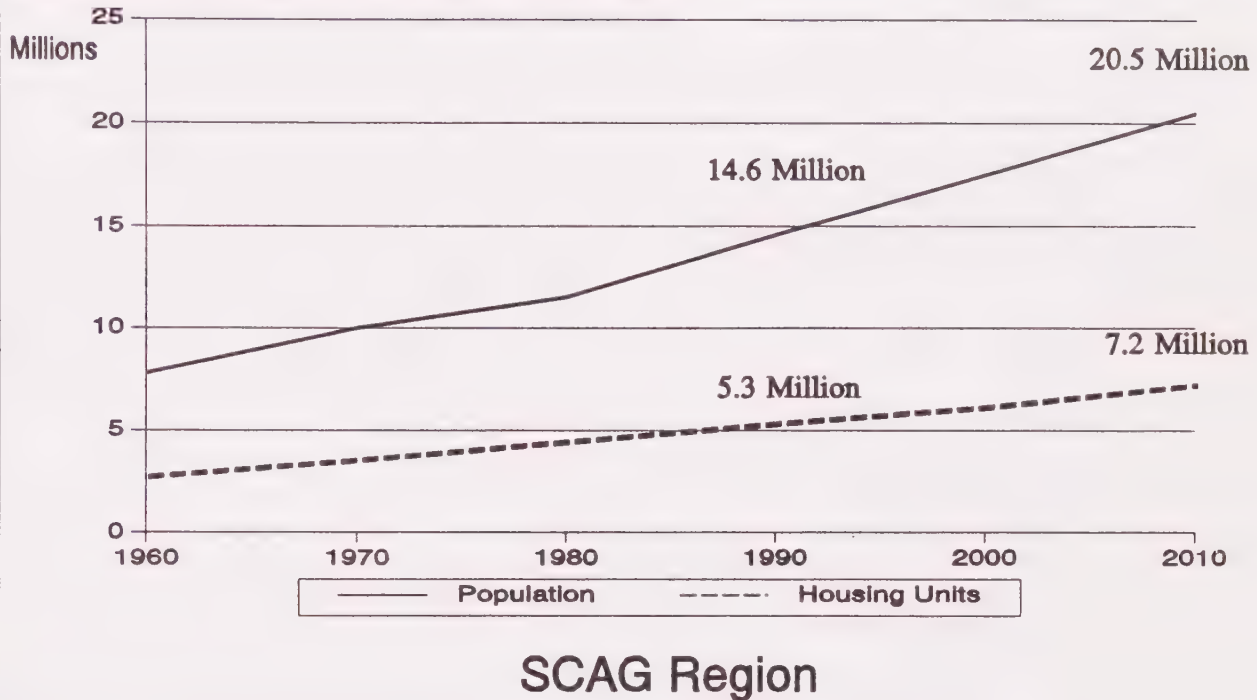
Figure 6-2

By 2010, the population in the region is expected to be 20.5 million or 6 million more than it was in 1990 (see Figure 6-3). While 18 percent of the region's population live in the inland empire, it will account for nearly 40 percent of the growth. Increasingly, in the years ahead, population and jobs will migrate to inland areas, drawn by housing, space and cost considerations.

About 2 million more units than exist today will be needed during the next 20 years. The housing demand resulting from this growth, plus the underlying socioeconomic and cultural shifts, will be substantial. If housing construction lags behind demand, the region may face an increase in illegal or "shadow-market units", a drop in vacancy rates to much lower levels, an increase in household size as adults delay entry into the market, an increase in overcrowding, and a bidding up of lower-cost units into higher-cost categories.

Population and Housing Unit Trends and Projections

Constraints on housing construction plus changing socio-economic and cultural demographics may not result in an increase in household formation levels. This may result in a lower volume of future housing needed as more households double up, young adults slow their entry into the market and the average persons per household level stays high.



Source: U.S. Census and SCAG Modified Forecast

Figure 6-3

2. A CONSENSUS FOR ADEQUATE AND AFFORDABLE HOUSING

A fundamental question is how to bring housing costs and decent shelter within the reach of more households as the region develops into the next century. State Housing Element Law¹ mandates that "... each local government has the responsibility to consider economic, environmental, and fiscal factors, and community goals set forth in the general plan and to cooperate with other local governments and the state in addressing regional housing needs."

A consensus is needed on future subregional goals and strategies that are locally specific and realistic so that the housing situation of all Southern Californians can be materially improved at the same time that additional growth occurs. A fair and balanced share of growth is the starting point for achieving a consensus on where, how much and for whom to build housing. Existing housing cost, affordability, quality, and diversity needs

¹Cal. Gov't Code §65582(e).

must also be addressed in the context of improving the availability of housing in proximity to jobs, and reducing environmental impacts.

Everyone's quality of life is influenced by the high cost and lack of affordable housing. A major concern is how to transform the built environment into more balanced communities that offer a mix of housing opportunities for both the rich and the poor, elderly and non-elderly and for people of different cultural, racial, and ethnic backgrounds.

B. REGIONAL HOUSING GOALS

The Housing chapter goal² is focused on providing a planning framework for cities, counties, and subregions so that they can fashion housing strategies that are responsive to regional market needs related to growth and change during the next two decades. It is intended to be flexible, broad in scope, and a tool in relating housing concerns to a host of other issues identified in the Regional Comprehensive Plan (RCP). The goals of the Housing chapter are consistent with the goals of the RCP—a rising standard of living, a healthy and environmentally sound quality of life, and achievement of equity. The goals of this chapter are the following:

- Decent and affordable housing choices for all people.
- Adequate supply and availability of housing.
- Housing stock maintenance and preservation.
- Promote a mix of housing opportunities regionwide.

These goals are a product of subregional input, and comment as well as feedback on housing issues presented during one or more study sessions on "Housing Southern Californians," which is the working title of the Draft Regional Housing Element dated April, 1993. These study sessions were presented through the Regional Housing Needs Assessment Subcommittee of the Community Economic and Human Development (CEHD) Policy Committee of the SCAG Regional Council. Starting in May 20, 1993, seven sessions have been convened.³

²See subregional input from Arroyo Verdugo, City of Los Angeles, San Gabriel Valley, SELAC, South Bay Cities, WRCOG, Westside Cities, and VCOG.

³In addition, the following background materials for subregions, local governments and the public were prepared for this chapter. They include the following:

- Preliminary RHNA, Dated June, 1992
- RHNA Appeals Procedures, dated September, 1992
- Census of Housing Profiles and Maps for Southern California and Six County Area
- Housing Market Trends and Future Needs by Dowell Myers PhD, dated January, 1993 (a guide to the RHNA and the implications of the SCAG Modified Forecast dated November, 1992).
- Regional Housing Needs Assessment (RHNA) Sub Committee study sessions on RCP related housing issues (8 sessions since April, 1993)
- DRAFT Regional Housing Element, dated April, 1993

The Regional Housing Needs Assessment (RHNA) is the major tool for coordinating local housing development strategies in Southern California. A regional framework is needed to help achieve subregional consensus on what constitutes a local housing strategy that is responsive to market area needs and state mandates. RHNA policies are the backbone of the future strategy to achieve housing related goals and integrate housing issues with other chapters of the Regional Comprehensive Plan (RCP). Subregional input was focused on improving the RHNA distribution of need and process for complying with State Housing Law. They contributed the following policy objectives:

- Transfers of needs and resources.^{4 5}
- Sub-allocations.⁶
- Mediation and dispute resolution.
- Sub-area housing strategies.
- Limit state role.⁷
- Proposals to reform Housing Element Law.
- Consensus housing, population and employment forecasts

C. NEEDS AND STRATEGIES

The SCAG region is faced with a declining housing market, as indicated in the section on the intensifying housing crisis. Section B sets forth goals to be accomplished in the SCAG region. This section identifies strategies that correspond with the aforementioned goals. The following strategies serve as actions to pursue in reaching regional and subregional solutions. *Note:* The identified strategies are not all inclusive and does not preclude other actions and/or programs that assist in reaching the stated goals. Also included are guiding principles that are used in carrying out the strategies. The guiding principles underlie the basis for a workable regional solution. They are the foundation for a regional housing strategy and a blueprint for addressing the strategic issues facing local governments in Southern California and are as follows:

-
- Advisory on Homeless Issues, by Tierra Concepts, Dated April, 1993
 - The Homeless in Southern California: A examination of 1990 Census data, dated April 1992.
 - RCP Discussion Document, Housing Chapter, dated July, 1993
 - Overcrowding in Southern California, work in progress, excerpts issued in August, 1993
 - Subregional Housing Market Profiles (14 in all) published in September, 1993
 - Redevelopment and Affordable Housing Resources, dated October, 1993
 - Regional Housing Affordability Needs, An Analysis of Comprehensive Housing Affordability Data prepared by HUD, dated October, 1993
 - Finalized DRAFT Consensus Housing, Population and Employment forecasts, dated November, 1993.

⁴South Bay Cities subregion recommended that cities also receive credit for illegal units toward their fair share goal

⁵SELAC subregion recommended that facilitating transfer of housing funds and credits between jurisdictions in meeting affordable housing targets be part of a subregional housing approach regarding overcrowding and impactation of lower income households

⁶Many subregions expressed the need for allocations at the subregional level.

⁷Many subregions recommended the state should have a limited role in Housing element review.

- **Financing and Incentives**—Substantial funding incentives, and financing should be sufficiently high to encourage and enable a local commitment to meet fair share needs for residents and newcomers.
- **Fair Share**—All communities, counties, and subregions share in the responsibility to make equitable and substantial commitments to providing adequate and affordable housing.
- **Balanced Growth**—Flexible growth shares are needed to support employment and residential growth. New local housing opportunities should match the wages, salaries, or budgets of new employees and other residents; provide a mix of affordable building-type options that support social diversity goals, and be responsive to job-based housing needs emerging in neighboring areas as well as in the locality.⁸
- **Comprehensive Planning**—The pattern of housing location should support regional goals in all planning areas, provide for a more compact and balanced urban form and preserve the natural environment.
- **Local Control**—Local governments should participate in the housing allocation process and retain the authority for site and development approval.
- **Subregional Role**—Regional allocations should reflect an interactive process allowing for a maximum of local input, through subregional associations of local governments in the development of balanced growth and fair share housing need assignments or transfers.
- **Consensus and Commitment**—The result of the process should be clear to the public and development community so that housing costs can be held down, affordability improved, and a wide mix of housing choices provided to meet existing and future needs.

1. Goal: Decent and affordable housing choices for all.

Strategy 1: *Housing choices in line with incomes of work force.*

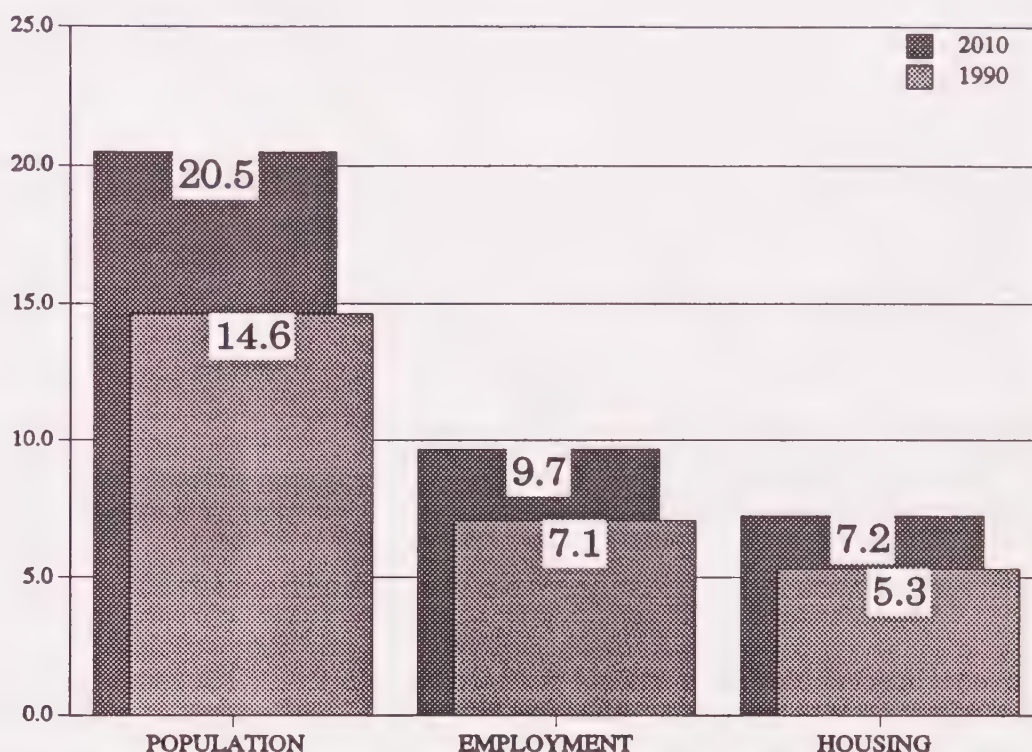
Job growth and an increase in per capita income will be critical factors in restoring consumer confidence and spurring housing demand, construction lending, and economic recovery (*see* The Economy chapter)⁹. Special attention needs to be given to education and training to ensure the work force can access better paying jobs and afford better housing. A balance of affordable housing opportunities given the expected wages and salaries of tomorrow's jobs will challenge every area of Southern California (*see* Figure 6-4).

Significant housing cost and availability differentials among subregions encourage workers to move out of local markets and commute in from other areas along with a desire to isolate themselves from urban social problems. Continued unbalanced growth will contribute to mobility, congestion, and air quality problems, increased fuel consumption and energy use. Many employers are leaving and many employees refuse transfers to the region due, in part, to high housing costs and stressful commutes. The challenge of the next two

⁸Subregional input: VCOG

⁹*see* The Economy, Chapter 2, for a discussion of strategies to increase per capita income.

SCAG Draft Regional Forecast, 1990 and 2010



Source: SCAG

Figure 6-4

decades is to bring housing costs within reach of more of the work force and to reduce cost differentials between metropolitan areas and subregions. The Growth Management Chapter and the RHNA provide strategies and policies for addressing this policy issue.

Recommendations

- State Housing Law should be reformed and refocused from planning issues to housing production that is in line with the affordability needs of the work force and within the budgets of households at every income level.¹⁰
- Local shares of growth should be flexible, balanced and fair so that a supply of housing addresses job and population based needs for adequate and affordable housing.

¹⁰CEHD Policy Committee and Subregions

Strategy 2: Meeting future age-related housing demand.

In the 1980s, the region experienced increases in population, which averaged 300,000 people per year while the number of new residential permits issued for housing averaged 97,000 units per year. These permits resulted in an average of 87,000 new units added during this period. Please note that permit levels exceeded housing units because not all permits are used and there are adjustments to the housing stock such as replacement units, second homes, vacancies, conversions, and illegal units. To meet the forecasted demands for housing by 2010, the region has to generate 120,000 permits in order to produce the over 100,000 units needed on average.

Average household size also affects construction activity and need. When average household size in the region is small more housing is needed than when it is large. For instance, 1 million added population housed with three people per household would occupy 333,000 housing units. However, at 2.5 people per household about 400,000 units or 20 percent more are needed. Households consist of families and individuals occupying units. Projections of household formation (headship) rates by age, ethnicity, and tenure and the resulting estimate of household size are derived from SCAG population projections.

The key linkages between population and households are age-related housing demands and underlying shifts in the ethnic and racial make-up of the population. Adults may delay entry into the market for several reasons including housing availability, cost, and affordability. Matching housing opportunities with the budget and household size needs of tomorrow's population will be a major challenge in the years ahead. Affordability refers to the spectrum of housing supply that is in line and in balance with the range of income levels of owners and renters expected to reside in the market area. Construction need by income group and tenure is provided in the Regional Housing Needs Assessment (RHNA). The 1988 RHNA identified 900,000 lower-income households paying more than 30 percent of income for housing while the 1990 Census identified 1.2 million. Both the 1988 RHNA and the 1990 Census identified almost 40% of all households as lower income, putting future housing opportunities for this group at 800,00 units between 1990-2010 or an average of 40,000 per year.

Constraints on housing construction may not permit the levels of development projected on the basis of need. A number of factors may interfere with construction activity such as the lack of job growth, vacant land supply, capital availability, consumer affordability and political sentiment toward growth restrictions in built-up areas.

Time constraints are also important since 100,000 units are needed a year between 1990 and 2010, yet, less than 40,000 permits have been issued in the last few years. Permits are a leading indicator of future construction activity.

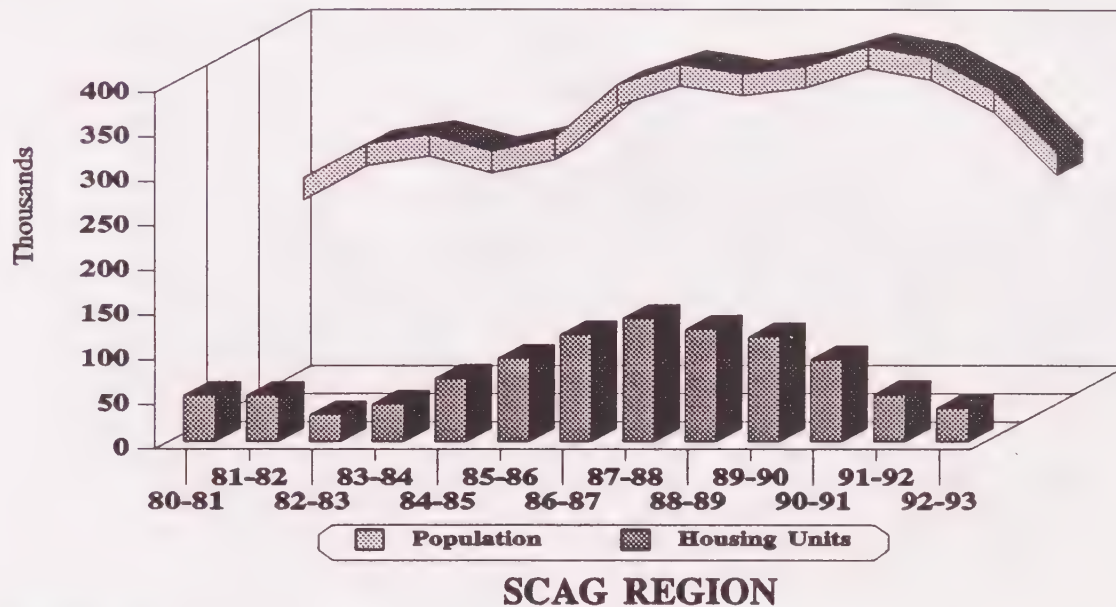
If construction activity falls below projected levels, as has been the case in the first few years of the 1990s, and if population growth remains as projected, a number of adjustments in the housing market will occur. These adjustments include: vacancies below optimum levels, depressed replacement rates as less recycling occurs, more overcrowding and reduced household formation rates than what is currently expected (see Figure 6-5).

Lack of housing availability will have the most impact on "baby boomers" born from 1945 to 1964. These households will have a major influence on growing housing requirements as they move into middle age where

POPULATION & HOUSING UNIT TRENDS, 1980-1993

(Annual Change, in Thousands)

The region is starting the 1990s with a much higher housing deficit than it did in the last decade. This brings into question whether a late decade boom of sufficient magnitude can be generated to fully meet housing demands related to steady population growth.



SOURCE: DOF

8-16-93

Figure 6-5

incomes are highest and move up demand greatest. Parents of "baby boomers" will pass into retirement years. They have different housing demands and represent another growing segment of households (see Figures 6-6, 6-7, and 6-8). The increased life span of the elderly will also open up a whole new market for a spectrum of housing services to meet the dependency needs of those 75 years and up.

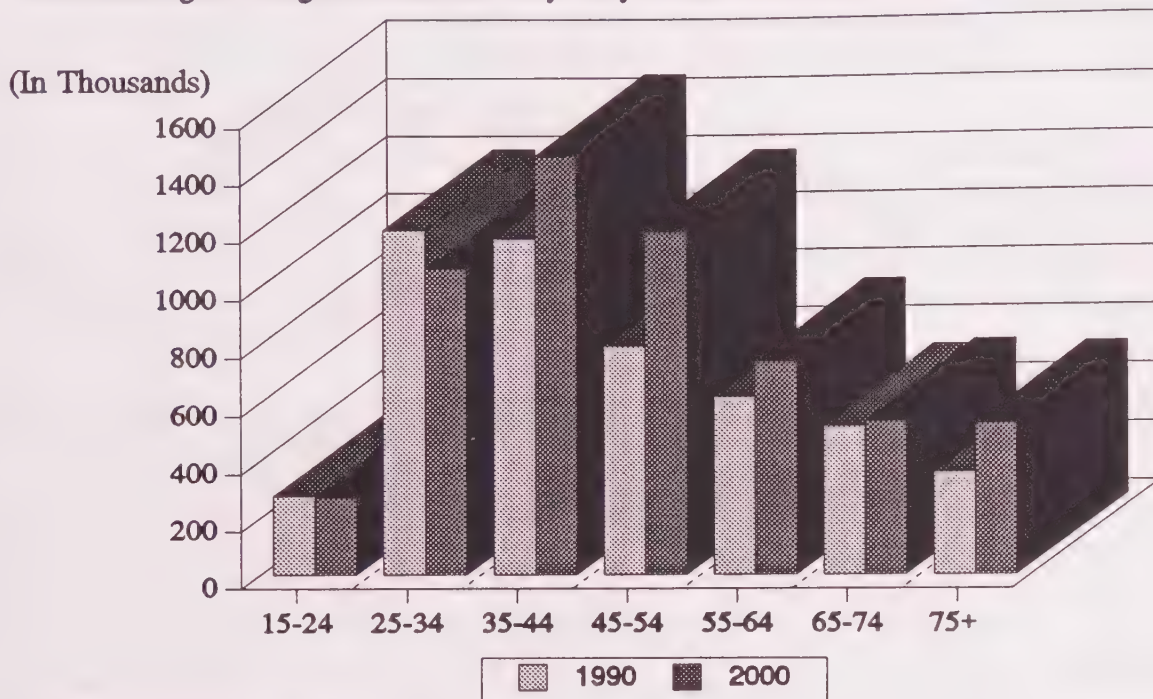
However, the rate of increase in young households age 15-34 will slow down and lessen rental housing demand. The rapidly growing number of children will also have a significant impact as the general population matures. This increase is due to baby boomers reaching parenthood and due to rapid immigration of young adults of parent age. They are a significant share of the average household size in the region.

Overall, total households will increase 40 percent over the forecast period (to 2010). Of the three age groups mentioned above, baby boomers and the elderly will grow the most, during the next two decades. But younger households in the 15-24 age group will be a significant force in the market place beginning in the 2000-2010 period. This younger group will be much more ethnically diverse than in the past.

The rise in younger households will occur at the same time that a large segment of the "baby boomers" will reach their pre-retirement years (age 55-64) when households "cash out" of their single family homes and

Households By Age

Baby boomers born from 1945 to 1964 will advance into the 35-54 ages by the Year 2000. These middle ages are where incomes and move up housing demand are greatest. The ratio of children to adults will also increase as they raise families. Parents of baby boomers will enter retirement ages in large numbers and they carry different housing demands.



Source: SCAG Modified Forecast and 1990 Census
3-25-93

Figure 6-6

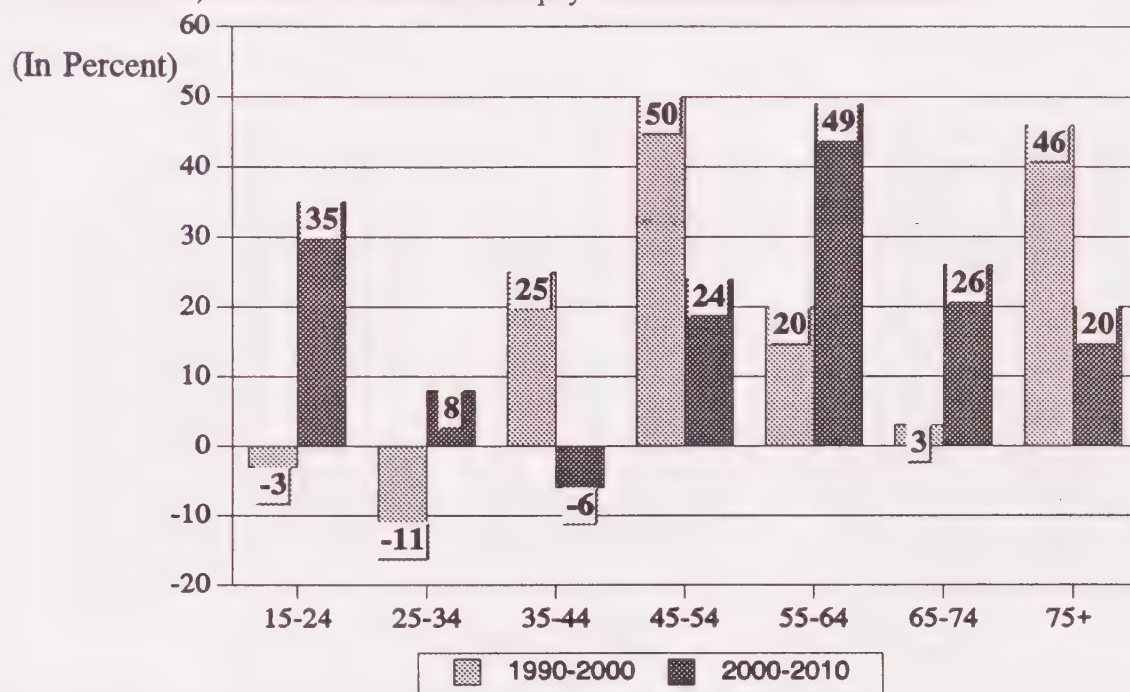
begin to consider new housing and location options.

Recommendations

- Regional housing allocations should reflect an interactive process allowing a maximum of local input through subregional organizations so that housing assignments are credible and realistic.
- Neighborhood or community based housing advisory councils can help local governments adopt plans policies and ordinances that accommodate enough housing, settle infrastructure issues and environmental concerns during the local housing element update process and before builders submit development proposals.

Household Growth By Age

Will baby boomers and their older parents be able to sell their existing homes to younger households at prices they need to trade up and improve their housing situation? Will younger households be able to afford tomorrow's housing or will they continue to face low ownership achievement, live in crowded units and pay excessive amounts for shelter?



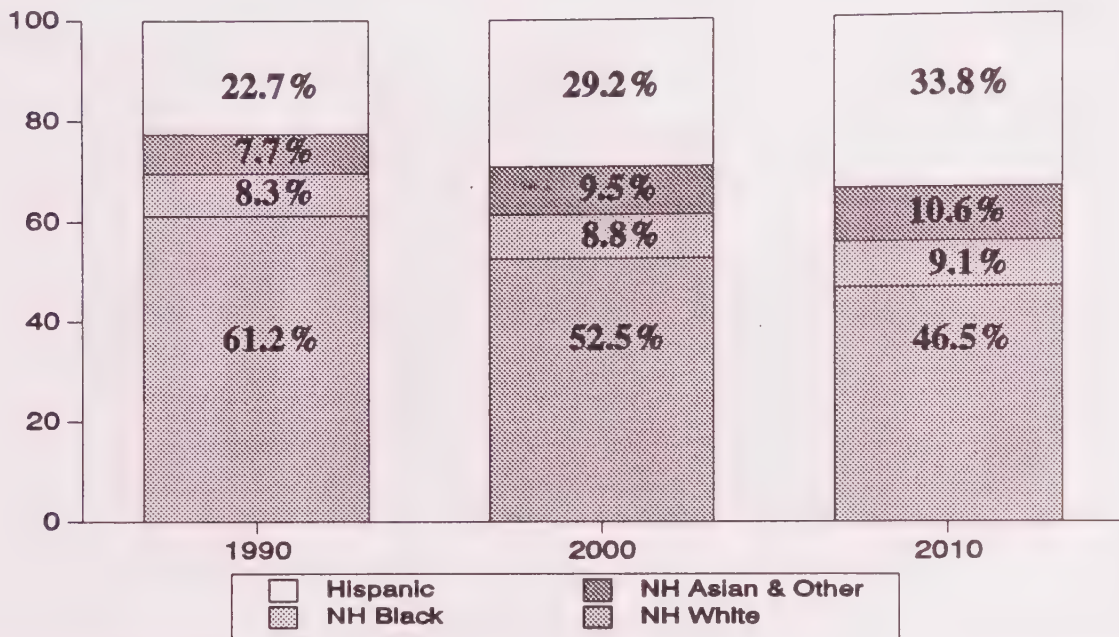
Source: SCAG Modified Forecast and 1990 Census

3-25-93

Figure 6-7

Distribution of Householders by Race/Ethnic Origin 1990, 2000 and 2010

The ethnic shift underlying future growth and population aging shows a drop in older non-hispanic white households and a substantial increase in younger minority households with different housing demands.

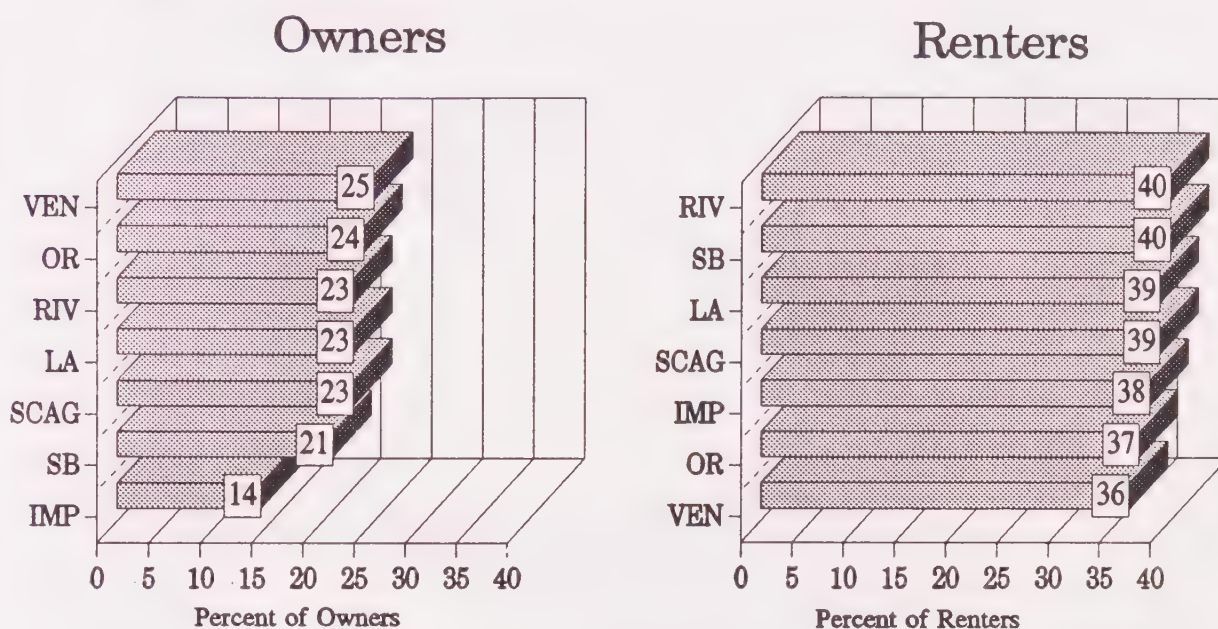


Source: SCAG Modified Forecast

Figure 6-8

HOUSEHOLDS MAKING EXCESSIVE PAYMENTS FOR HOUSING

The proportion of renters with a payment burden is much higher than it is for owners.



Note: Excessive payment is defined as households paying 35% or more of income toward housing.

Source: 1990 Census, Stf 3

Figure 6-9

Strategy 3: *Address the need for affordable housing.*

Rising housing costs are contributing to excessive payments among renters (see Figure 6-9), a marked increase in overcrowding (see Figure 6-10), lower home ownership achievement among minority and young households, and a rise in homeless people. Cost-reduction strategies and the timely and effective use of existing resources such as redevelopment housing funds and other state and federal resources are needed. According to the 1990 Census, the most widespread problem in Southern California was housing affordability and the hardest hit segments of the population were large related renters and elderly renters. Eight-five percent of all households making excessive payments for shelter were non-elderly households (primarily renters). The incidence of housing-affordability problems among lower and higher income households increased from one-in-four households in 1980 to almost one-in-three households in 1990.

Overcrowding was primarily a response to high housing costs, changing household composition, high housing quality standards and the influx of immigrants. Among overcrowded households the majority were severely crowded. Severely crowded units (more than 1.5 persons per room) rose from 202,210 in 1980 to 485,653 in 1990, a 140 percent increase. The fastest growing incidence of severe crowding is in suburban area counties outside of major metro areas and inner cities.¹¹

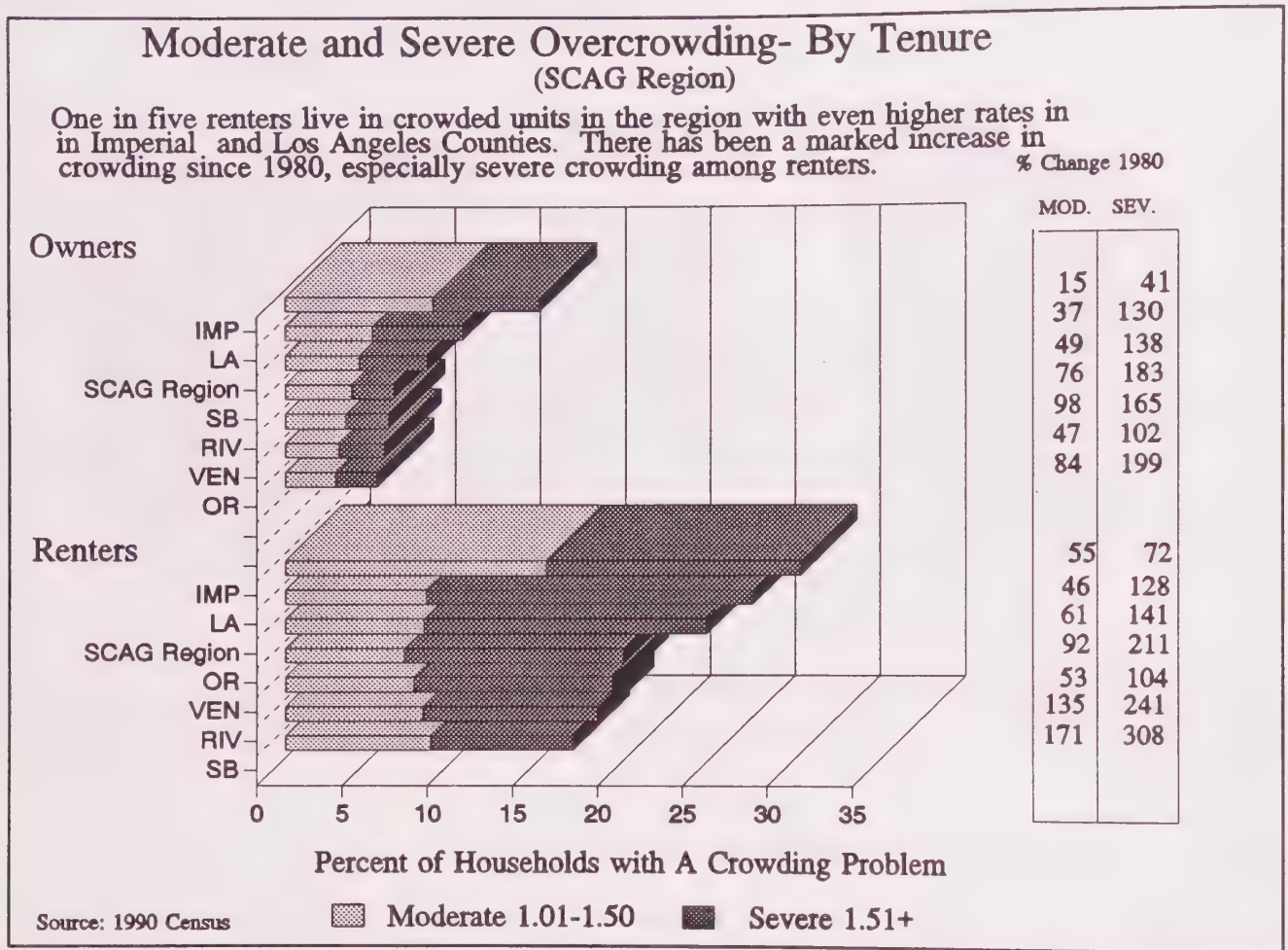
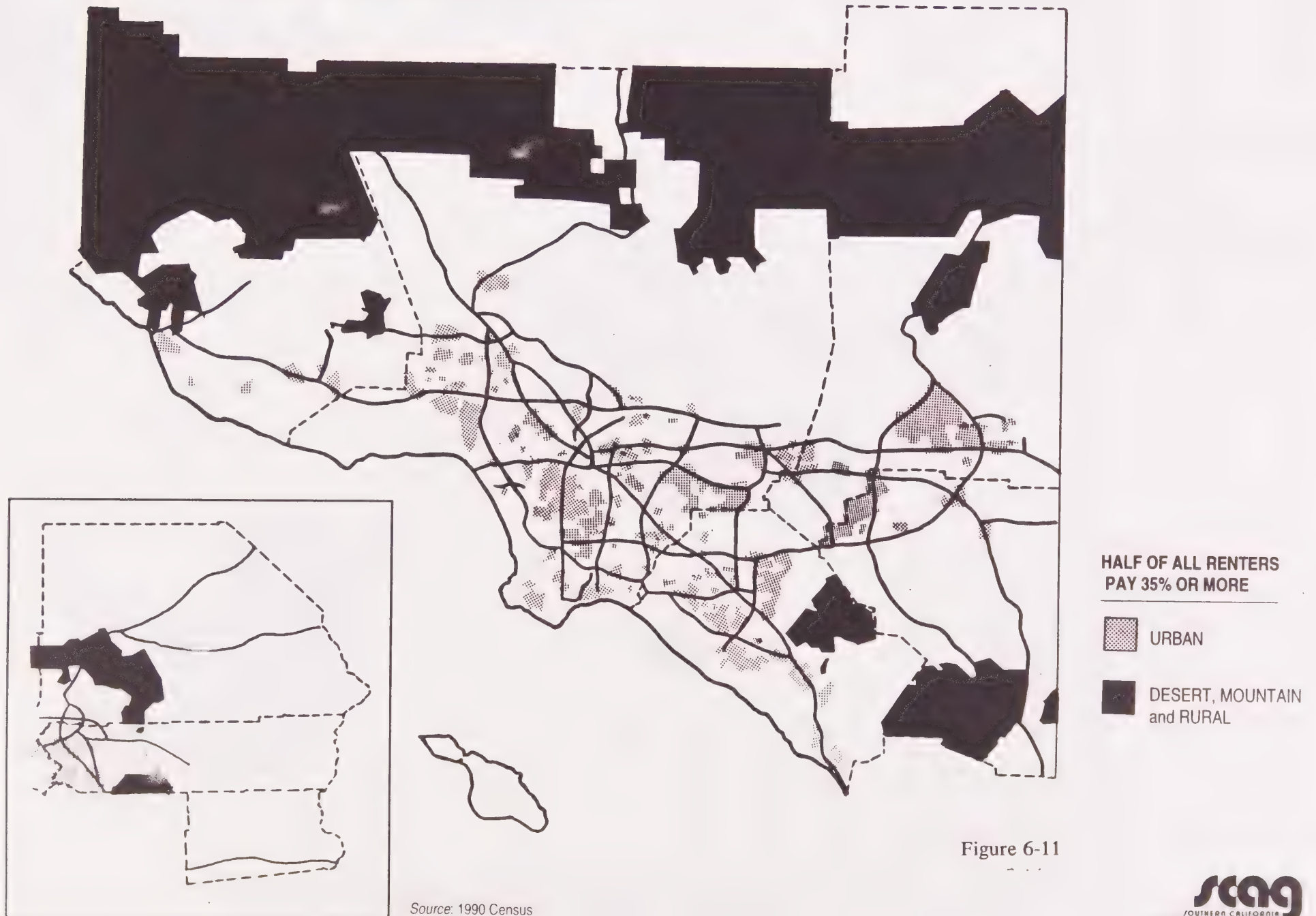


Figure 6-10

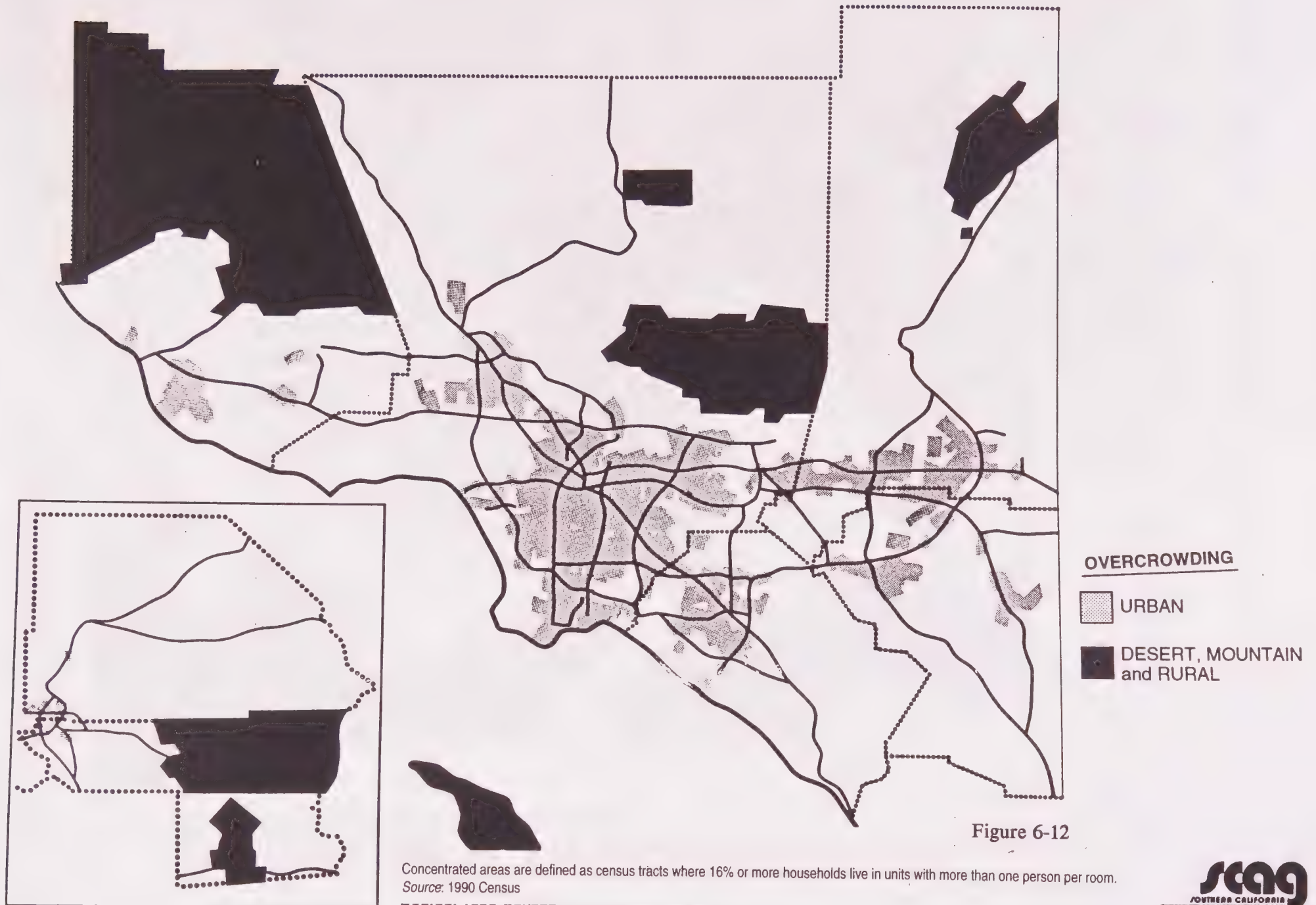
Urban core and edge areas of the region had high concentrations of renters that were cost burdened and households that were overcrowded (see Figures 6-11 and 12). The rise in excessive payments for housing and severe crowding were accompanied by an enormous increase in housing prices in Southern California during the 1980s. Both values and rents increased far above state and national medians and much faster than

¹¹SELAC subregion suggest that a cooperative program to address this issue to include considerations such as local ordinance development and code enforcement for public health and safety, and adequately funded programs to increase housing supply, and influence immigration policy to reduce pressure on the available housing supply.

WHERE MORE THAN HALF OF ALL RENTERS PAY OVER A THIRD OF THEIR INCOME FOR HOUSING



AREAS CONCENTRATED WITH OVERCROWDED HOUSEHOLDS



consumer incomes. Between 1980 and 1990, values soared 141 percent and rents increased 128 percent. In contrast, the median household income rose 100 percent before discounting for inflation.

The number of very-low-income households is rising absolutely, while lower-cost units have been declining due to the demolition of older units; increasing values and rents taking existing units out of the affordable category; conversions of some rentals to condos; boarding up of some units in blighted areas, the expiration of low-income-use restrictions on government assisted housing, and a drop in subsidized unit production.

There is a clear need for affordable housing. Based on the 1990 Census the SCAG region had some 4.9 million households. Of the 4.9 million households, 1.9 million were very-low-and low-income households and almost 1.2 million spend more than 30 percent of income for shelter. This is an increase of 30 percent since 1980. In addition, among all households, the proportion of owners and renters paying less than 20% of income for housing dropped markedly between 1980 and 1990 while those paying above 35 percent of income increased significantly.

Recommendations

- Restore and increase a large-scale federal role in providing housing subsidies and community development funds to house the poor and low wage workers because local, state and private efforts are by themselves insufficient.
- Communities may also consider creating public/private and non-profit partnerships for affordable housing and construction jobs.

Strategy 4: *Home ownership for young and minority households.*

Home ownership rates stayed about the same between 1980 and 1990 for the population as a whole. About 54 percent of all households owned their home. But trends showed substantial declines in ownership by younger adults, while gains were registered by the elderly (*see* Figure 6-13). There were also substantial variations of ownership achievement by geographic area, and (*see* Figure 6-14) racial or ethnic background. Non-Hispanic Whites and Asians saw their ownership levels nudge upwards to 62 percent and 54 percent; whereas, Hispanics and non-Hispanic Blacks saw their ownership levels dip slightly to 39 percent and 38 percent.

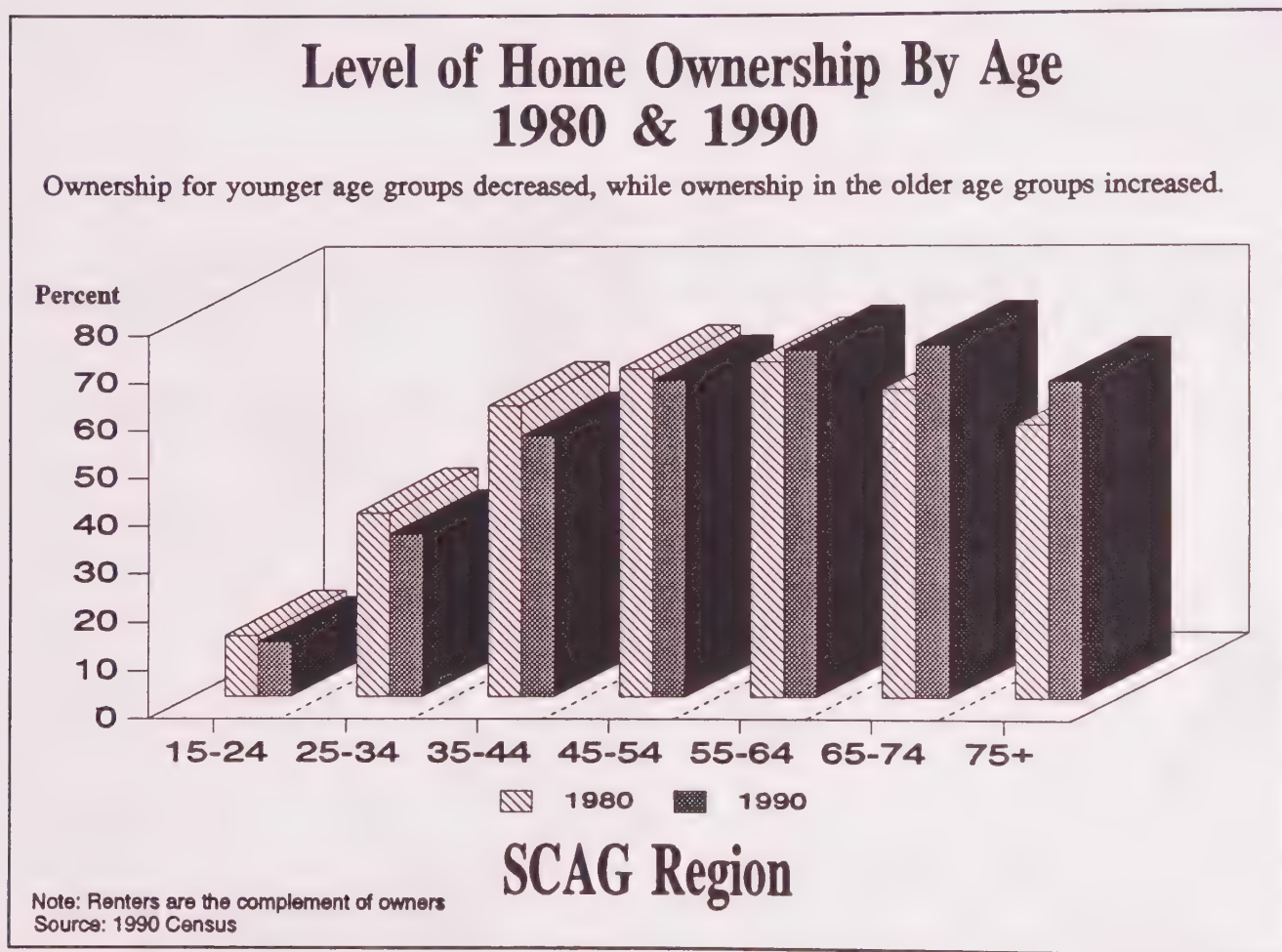
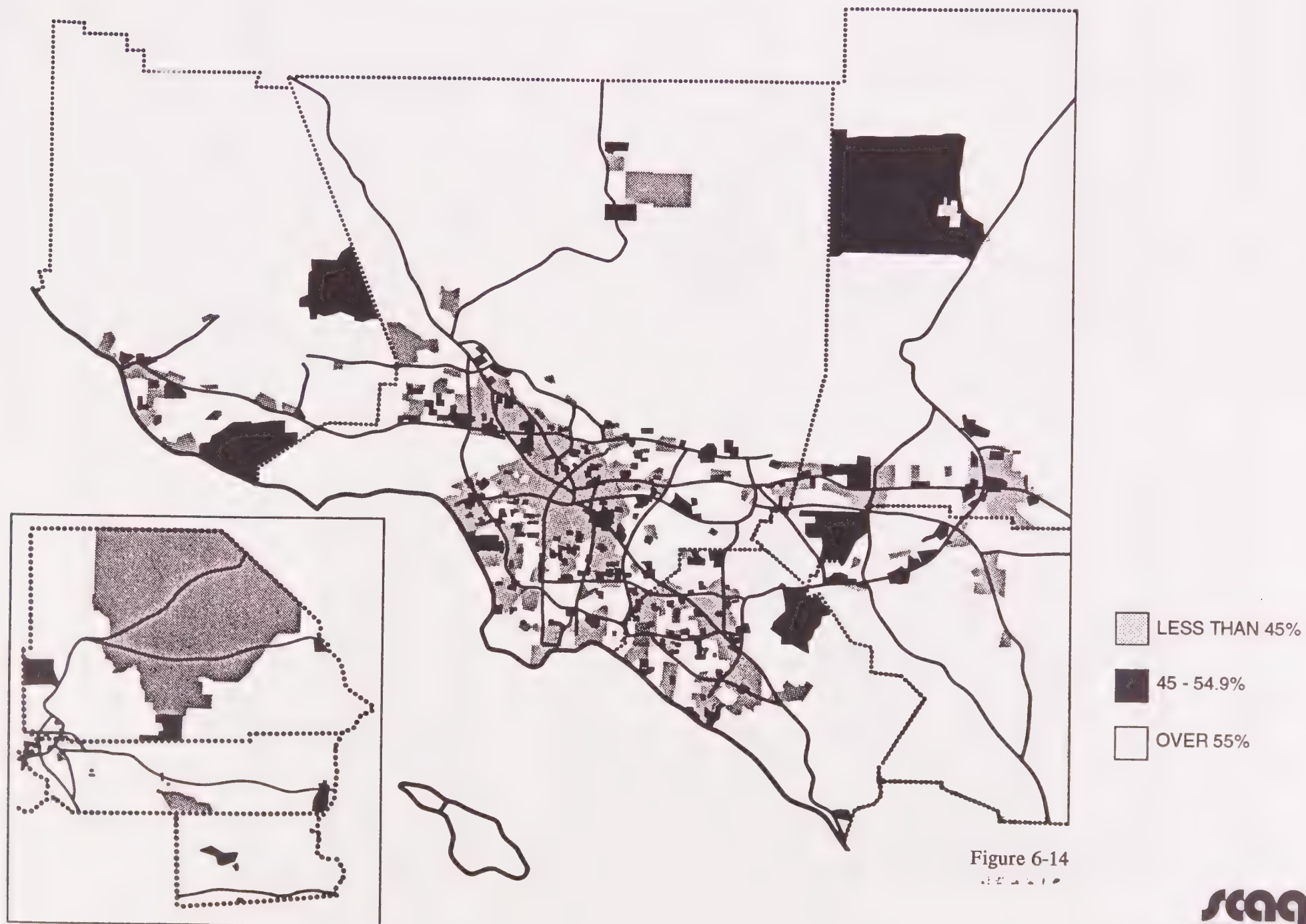


Figure 6-13

For some, housing conditions improved. Households (over 55 years of age) saw their ownership levels increase. This was not a result of entering into home ownership for the first time. Instead, as the population matured, older residents carried dwelling equity with them from an earlier era (post-World War II through the mid-1960s) when home ownership was more accessible to the young (25-44 years of age) than it was in the 1980s. About one-fourth of all homeowners in the region were 65 years of age or older in

PERCENT OWNER OCCUPIED



1990, while they make up about 18 percent of all households. Almost 75 percent of all senior households (65 years or older) own their own homes.

Also, attention needs to be paid to the needs of young and minority households wishing to access home ownership. Between 1980 and 1990, the percentage gap in home ownership between the young (25-34 years) and the old (65 years) plus widened. Building the equity stake of younger, primarily minority households in Southern California is critical if they are not to track well below their predecessors in the future. Elderly renters are very vulnerable to housing problems related to cost burden since they typically live on a fixed income. Without the equity cushion of home ownership, senior citizens that rent and have housing problems may grow substantially at the same time home ownership for the young stays relatively low. Keeping a balance of home ownership opportunities that fit the entry level needs of young members of the work force as well as the trade up needs of older members will be important factors in attracting jobs to Southern California. Business location decisions are influenced by the amount of affordable home ownership opportunities available to the work force.

Recommendations

- Banks should set affirmative lending goals and quantify targets for addressing Community Reinvestment act requirements for meeting credit needs of mortgage deficient communities.
- Encourage the development and support of programs that make first-time home ownership available.
- Support federal and state financing programs that enable lower income households to qualify for home purchase financing and downpayment assistance.

2. Goal: Adequate supply and availability of housing.

Strategy 1: *Reducing major components of new housing cost.*

Rising housing production costs and economic uncertainty are preventing the development of an adequate supply of affordable housing choices for many Southern Californians. These rising costs are partially due to political and regulatory barriers and the structure of local government funding (property and sales tax systems). They have a material effect on land cost and availability (see Figure 6-15). Housing production costs are also affected by cost of construction materials, labor, and capital financing.¹² A broad-based effort needs to be taken to reduce costs in every major component if a competitively priced housing market in Southern California, relative to the rest of the nation, is to emerge in the decades ahead.

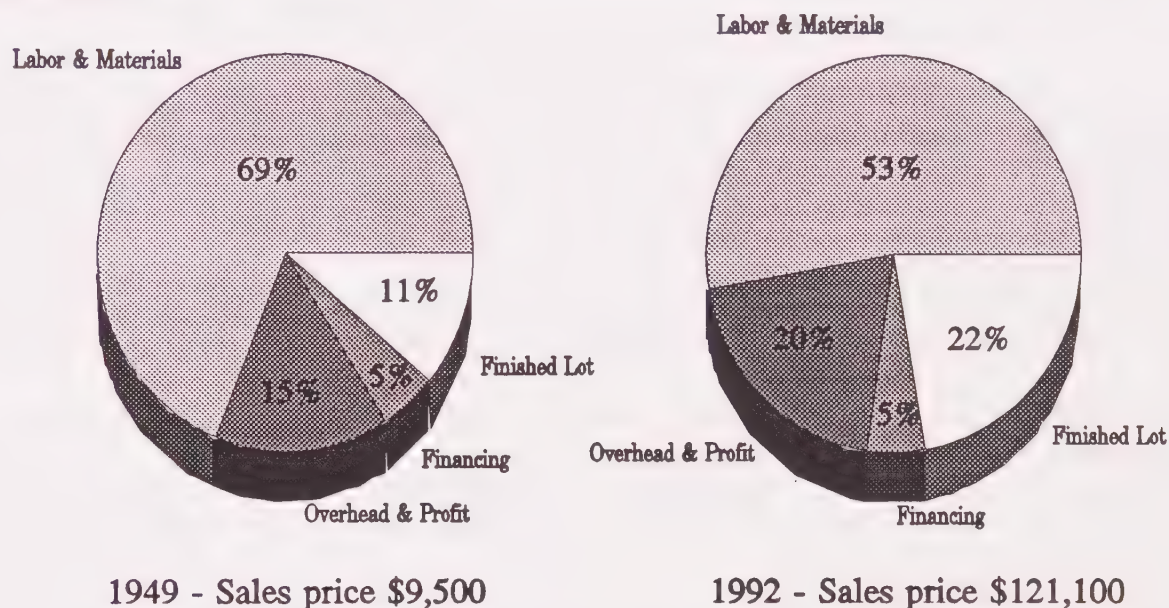
Only Hawaii has higher housing costs than California. About half of all the homes valued above \$200,000 in the nation are found in California. Despite the recession-related deflation in home values and moderation of rents, the Southern California housing market is still one of the least affordable in the nation.

In 1974 Southern California median home costs were at the same level as the rest of the United States. Since then, the median home prices in Southern California compared with the rest of the United States have

¹²Ventura County Planning Department letter on RCP Discussion Document, Housing chapter.

Cost Components of a New Single-Family Home

Recent technological advances in home building have significantly increased efficiency and reduced the proportionate costs of labor and materials. In 1949, labor and materials comprised 69 percent of the cost of a new single-family home. By 1992, the total had dropped to 53 percent. However, the drop was offset by a sharp increase in the cost of a developed lot. In Southern California a finished lot accounts as much as 35 percent of the total cost in more affluent areas and is more like the national average in distressed areas.



Source: *Housing Backgrounders*, National Association of Home Builders, 1993

Figure 6-15

doubled. At the same time, regional real per capita income growth declined in the 1980s compared to the 1970s.

The upswing in housing prices occurred at the same time that bank underwriting and appraisal standards began to ride domestic and foreign real estate speculation; the "due on sale" regulations changed in California; high interest rates raised financing costs; and secondary wage earner incomes were taken into account in mortgage qualification.

Underlying the rise in values and rents was an increase in land costs spurred by an enormous demand for buildable lots due to population and economic growth. Builders bid up the price of developable land in an attempt to gain inventory, while local governments placed limitations on supply due to quality of life and environmental concerns. During cyclical boom periods (1975-81 and 1982-89) land assembly lagged behind demand and costs went up and were likely passed on to home buyers and renters.

The passage of Proposition 13 in the late 1970s attempted to off-set some of the impact of rising housing values on property tax assessments. The primary beneficiaries were elderly home owners. But the limits on

property tax assessments put a great fiscal strain on local governments and tilted the competition for available land in favor of sales-tax-generating uses rather than service-consuming uses such as housing in built-up areas.

In outlying areas, Proposition 13 encouraged urban fringe areas to court population growth by adopting pro-development policies and offering entry-level homes to commuters. This encouraged the development of a property tax base for the locality, extended a life-style choice to the home buyer and offered the prospect that some day jobs will follow. But it also encouraged sprawl and attendant problems related to environmental protection, service provision, infrastructure, and congestion.

Buyers of new homes everywhere have been hit especially hard by Proposition 13. The fiscal impacts resulted in the adoption of impact fees. While taxes were cut on existing homes, newcomers in new tracts were assessed at their full construction cost and new fees were added for streets, schools, parks and other facilities that property taxes previously funded. Some estimates put these fees at between \$10,000 to \$30,000 per unit or more on costlier homes.¹³ But these fees do not provide the home owner with any services that existing residents do not already receive. Plus, if home values do not go up, which is likely during the next few years, they will not benefit from a lower tax bill than subsequent newcomers to the neighborhood. What this means is that fewer newcomers and the young can afford new houses.

Prices for parcels and fees drive up housing costs in Southern California. In affluent areas land costs make up 35-to-40 percent of every new house or apartment. That is more than labor, materials or financing. Land would constitute an even bigger share of housing cost except that builders increase home size and amenities to offset the high cost of land. Recently, because of the recession, home size has dropped as builders aim at the entry level segment of the housing market.

Available land for low-and middle-income housing is scarce because of sensitive geography and the politics that prevent building at higher densities. Fees add between 5-to-10 percent to home price and apartment costs according to some analysts. Regulations, according to State HCD, add up to 80 percent of a new home price.¹⁴ The perception is that the majority of voters are in favor of zoning and environmental regulation. They also like fees, which shift costs for public improvements from current to future residents. Without state or federal money, local governments have to rely on fees to pay for public improvements and services. But fees drive up the cost of housing. Without state¹⁵ or federal mandates,¹⁶ local government will heed voters since they resent growth and are apprehensive about the impact of low to middle income housing, especially, its impact on local property values. The structure of local government finance and voter preferences combine to make housing cost reduction difficult. Although economic growth and recovery are predicated, in part, on more affordable and competitively priced housing. Without it, higher labor costs, limited affordable housing supply and longer commutes will make the region less attractive to both employers and employees. Households will also find housing taking up even more of their incomes than it does today.

¹³State Housing and Community Development Department (HCD)

¹⁴State HCD and the Claremont Institute.

¹⁵Cal Gov't Code §65580(b)

¹⁶Federal regulations related to entitlement programs for Community Development Block Grants and HOME Funds.

The California Environmental Quality Act (CEQA) also appears to emphasize a project-oriented review system rather than one that accounts for regional environmental costs and impacts. Recent revisions to CEQA allow site specific Environmental Impact Reports (EIR) to be limited in scope if the project is consistent with the general plan or a community plan (*see* Master Environmental Impact Report).¹⁷

Proposition 13 also spurred the creation of half the states redevelopment agencies and project areas. Among cities of more than 50,000 population, more than 90 percent had redevelopment agencies. Creating a redevelopment agency is one way a locality can keep property tax revenue resulting from new development. As a percent of the tax base, almost 10 percent is devoted to redevelopment in Southern California.

Section 33000 of the Health and Safety Code authorizes the use of tax increment financing, eminent domain, and other powers to achieve economic revitalization goals in defined project areas. The legislature created the redevelopment law in 1951 and put in place one of California's most successful and controversial programs. Annually, redevelopment agencies take in more than \$1 billion of which 20 percent must be set aside for construction and rehabilitation of housing for low- and moderate-income households.

The structure of local government finance needs to be reexamined in light of the side effects it has on the housing market and the ability of the region to establish a competitively priced housing market.

Recommendations

- There must be reliability and stability in local government financing in order to create a political environment supportive of affordable housing at the local level.
- The state structure of financing government should be reexamined because of the side effects of using impact fees to off set reduced tax revenue.¹⁸
- The state should establish a new infrastructure financing entity.
- Communities should try to the extent possible to reduce the major components of housing cost such as considering an alternative affordable housing development process that could include waived/reduced development fees, modified development standards (parking) and/or fast track approval process.
- Builders should build more lower priced housing and anticipate the need for rezoning, outside agency review and environmental impact reports since these add significantly to processing time.
- Construction unions should use new technology to reduce costs and permit some off site construction.
- When appropriate, local governments should take advantage of the tiering features of the Master Environmental Assessment of the RCP for local project and plan EIRs as well as the local general plan (*see* Chapter 15 Plan Implementation).

¹⁷ Master Environmental Impact Report provides further discussion on strategies to reduce regulatory costs.

¹⁸ RHNA and Planning Directors Committee Meetings.

Strategy 2: *Financing and the need for funding*

a. **Affordable Housing Finance**

The need for new units at all income levels will exceed the number of new units for which financing and subsidies will be available. Additional funding is needed to ensure the production of new subsidized units and housing subsidies as well as the continued flow of capital to market rate ownership housing that allows an adequate supply of low cost, low downpayment mortgage financing. In addition, there exists a need to educate the building and private financial community on opportunities in the affordable housing submarket.

For instance, in order to address affordable housing needs in the future an enormous commitment of capital resources and subsidies is needed in the region. If 25 percent of the annual average construction need of 100,000 units was devoted to developing affordable housing, one years capital requirement would be more than 3 billion (25,000 units at an average development cost of 125,000 a unit). The subsidy needed at an average of \$50,000 a unit would be more than \$1 billion. However, the stark reality is that the financing and the funds needed to provide new housing opportunities are not available despite demand.

New resources and additional funding are needed to meet the housing production and subsidy requirements of households earning less than \$40,000 per year in most markets. This cost is so high that multiple-financing programs and resources are needed (*see* Table 6-1).

Typically, a combination of several public sources (two-fifths), private financing (one-fifth) and tax credits from syndication (two-fifths) are needed to support construction in built-up areas because of high costs. The level of private financing will drop while trying to assist the low-income households to the very-low-income households, since rents supporting the financing drops. The gap is filled by more public subsidy. The key element in financing a development with affordability restrictions for households earning less than \$40,000, is the federal tax credit program.

Federal tax credits give investors significant dollar-for-dollar reductions when they invest in qualified low-income housing projects. Investment bankers and special equity funds sell the credits mostly to corporate investors to raise cash for projects.

In general, the complexity and risk involved in holding together several resources during the development process results in costs as high as in market developments, projects taking up to four years or more to build, a high project fall-out rate, abandonment of this market segment to non-profit and high administration costs.

New resources and a simplified housing assistance delivery system is needed to meet the housing production and subsidy requirements of affordable housing for modest income households. But how can the multiple-financing programs and funding sources be combined and coordinated to reduce the complexity and cost of leveraging? Should communities in-a subregion or commute shed be allowed to have the flexibility to evaluate their needs in common and pool or transfer resources under a reformed State Housing Law? If so, under what conditions¹⁹? A number of subregions have already approved this approach in concept. A "reinvented HUD" also needs to play a more direct role in providing fiscal relief to local governments and communities in need.

¹⁹South Bay Cities subregion have developed a preliminary model for a transfer program.

AFFORDABLE HOUSING The Many Players

CITIES/COUNTIES

Requirements:

- Housing Element "Fair Share"
- Limited ability to reject affordable housing projects
- Article 34 voter approval for publicly assisted housing for lower income persons
- Density bonus law

Tools:

- Density Bonus
- Zoning/General Plan (eg. mixed use)
- Reduced development requirements such as parking waiver of fees
- HOME funds
- Surplus land
- Land banking and writedown
- Partnership with non-profit
- Procedural reform (streamlining)
- Contributing infrastructure
- Housing trust fund

REDEVELOPMENT AGENCIES

Requirements:

- 20% "Set-Aside" to be expended for housing or "use it or lose it"
- Replacement of destroyed housing
- Production of affordable units developed that benefit project areas
- Conformity with Housing Element
- Preparation of a 10 year plan for housing (AB 315)

Tools:

- "Set-Aside Funds
- Redevelopment construction loans
- Mortgage revenue bond financing
- Eminent domain
- Purchasing land
- Flexibility to use resources: acquisition, rehabilitation, preservation, rent subsidy, SROs and new housing for renters and owners

STATE

Requirements:

- HCD review and approval of housing elements
- Article 34 voter approval for "low rent housing projects"
- California Debt Allocation
- Prevailing wage requirements requirement
- Century Freeway Corridor
- Tax Credit Allocation

Tools:

- HCD loans and grants
- CHFA financing
- HOME Funds
- General bond funds
- Mortgage revenue bond
- CA Housing Trust Fund
- Low Income Tax Credit
- Special need programs: rural, farmworkers
- Century Freeway Housing Program

FEDERAL

Requirements:

- HUD review and approval of local comprehensive housing affordability strategies
- Limitation on developer profit
- Davis-Bacon prevailing wage
- Low income tenant restrictions

Tools:

- HOME Housing Program
- Community Development Block (CDGB)
- Section 8 rent subsidy
- Low income housing tax credits
- HOPE
- McKinney Act Homeless Funds
- Other HUD Programs
- Mortgage credit certificates

HOUSING AUTHORITIES

Tools:

- Authority to operate housing projects
- Administration of federal programs and projects

FOR-PROFIT DEVELOPERS

Requirements:

- Profit commensurate with risk

NON-PROFIT DEVELOPERS

Requirements:

- Predevelopment and administrative costs must be funded

PRIVATE LENDERS

Requirements:

- Community Reinvestment Act
- Loans must "pencil out"
- Local funds must be subordinated to private financing

Tools:

- Savings Assoc. Mortgage Co.
- CA Comm. Reinvestment Corp.
- Federal Home Loan Bank

TABLE 6-1

Factors Influencing the Cost of Housing Development²⁰

- Specific affordable projects:
 - Higher proportion of larger units resulting in increased construction costs.
 - Twice as many financing sources as market rate projects.
 - Longer period between site control and construction start than typical.
 - Prevailing wage requirements for affordable projects adds up to 30 percent to cost.
 - Cost of project syndication using Low-Income Tax Credits adds up to 5 percent in project costs
 - Higher professional costs such as architects, engineering, and consulting fees related to additional time in predevelopment, particularly in distressed areas.
- Geographic:
 - Urban areas have higher costs than suburbanizing areas; affluent areas are more costly than distressed areas.
 - Urban projects use more expensive parking solutions to maximize density (structured parking).
 - Cost per unit for land ranges from about \$2,000 per unit in outlying areas to \$25,000-\$40,000 in suburban and urban areas.
 - Fees/permits make-up about 5 percent of development costs.

b. Local Redevelopment Housing Resources

At the local government level redevelopment serves as the single most important resource for addressing low to middle income housing needs and problems. In 1990-91 alone, redevelopment agencies in the SCAG region created 14,231 jobs, built 4,579 units of housing, and rehabilitated or constructed more than 15 million square feet of commercial, industrial and commercial buildings. But housing revenues exceed expenditures and large amounts have accumulated in agency accounts. About one-half billion dollars exist in redevelopment agency accounts, with one-quarter billion dollars estimated to be immediately available. Yet this amount at an average subsidy of \$50,000 a unit, would only support about 4,500 units; when annually, the region needs on average 40,000 new affordable housing opportunities (1990 to 2010).

However, the early and full utilization of these available funds can play a crucial role in creating local construction jobs and new housing opportunities for lower-income households earning roughly up to \$40,000

²⁰California Affordable Housing Cost Task Force Study. Dated January 1993.

a year in most markets and moderate income households earning more. These housing funds serve as the primary local resource for addressing affordable housing needs in the state and region (see Figure 6-16.)²¹

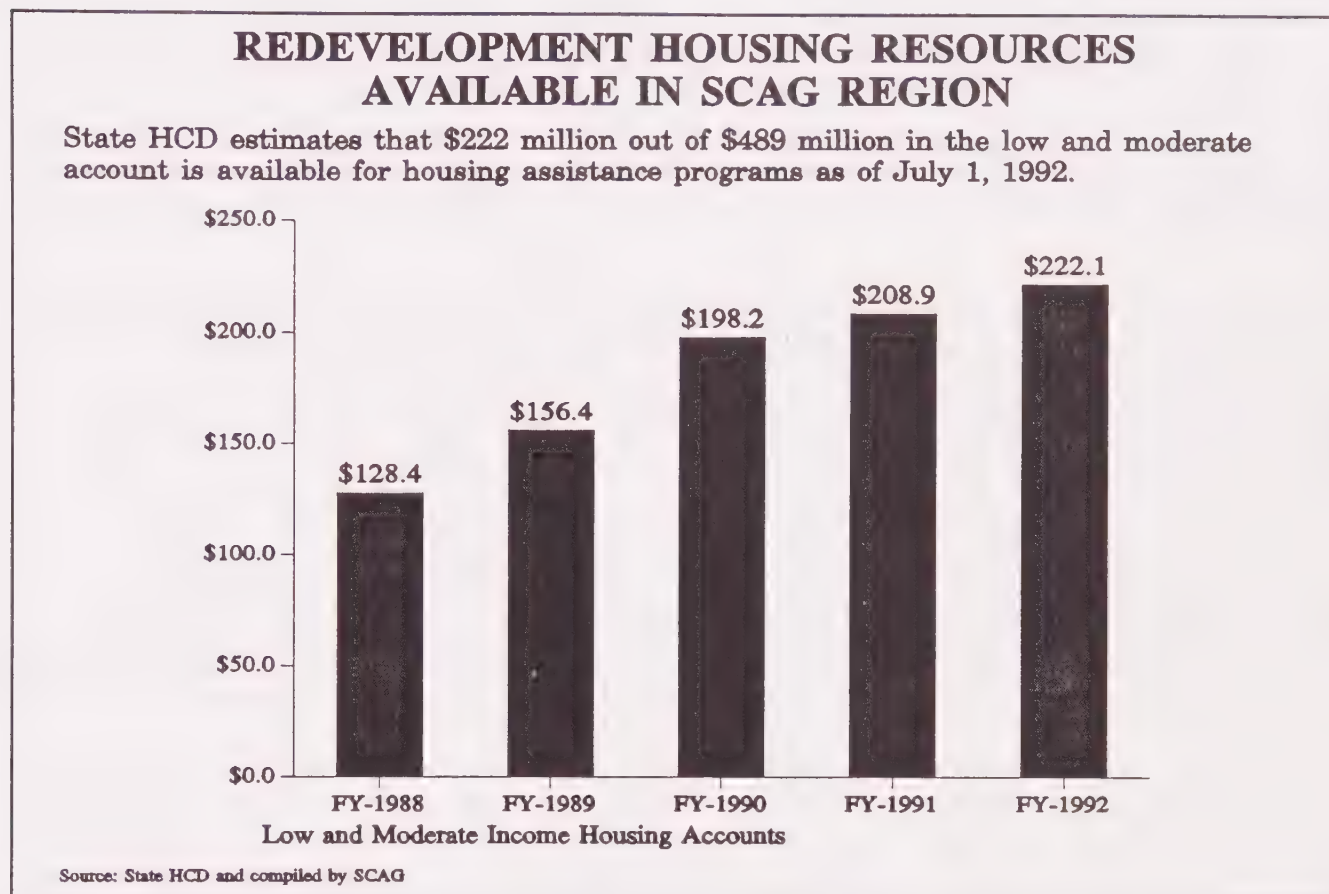


Figure 6-16

c. Need for New Resources

Redevelopment housing resources are by themselves insufficient to meet affordable housing need. New sources of funds from non-traditional sources and new innovative programs should be utilized for addressing housing issues. Such a non-traditional source is the *Enterprise Trust Fund*, which the 2000 Regional Partnership Housing Task Force Action Plan recommends. The fund could be used to accumulate resources for rebuilding infrastructure and revitalizing our inner cities. It proposes that a 1 additional fee be placed on special packaged mortgages that are sold to investors with the attraction that only the interest above the rate of inflation would be taxable. This pool of money would be used to finance capital investments and services needed to improve the capacity of communities-in-need.²²

²¹ See *Redevelopment and Affordable Housing Resources*, October, 1993.

²² see the Economic Component, Chapter 2 for a complete discussion.

Recommendations

- Reduce the gap between market wages paid to workers of most housing development firms and administratively set wages paid to workers on all types of federally supported projects by establishing separate residential prevailing wages for affordable housing projects. Present prevailing wage requirements raise construction costs 20-to-30 percent.
- The state should seek additional capital resources for local government and set up an organizational structure to bring order to the multiple financing programs that are needed to make newly built housing affordable.
- Local redevelopment housing funds should be fully utilized in a timely, efficient and effective manner since they are the primary affordable housing resource in California.

The 2000 Regional Partnership Housing Task Force Report recommends a series of proposals to ensure sufficient capital for housing through changes in state and federal regulations. These proposals include the following:

- Permanently extend tax incentives for low-income housing. (Recently passed by Congress)
- Urge banking regulators to revise excess regulatory limits and underwriting criteria, which interfere with the development of competitively priced housing. (New stringent lending criteria has reduced the number of mortgage lenders and make construction financing more expensive, especially for multi-family developers).
- Develop state incentives for pension funds to invest directly in competitively priced multi- and single-family housing.
- Establish state and federal incentives to encourage employer-assisted housing programs.
- Support federal legislation to increase the cap on tax-exempt mortgage bonds. (The \$150 million state cap that has been in effect is inadequate).
- Create a state sponsored source of credit enhancement for bond-financed projects.
- Create an Enterprise Trust Fund.²³

²³Policies or incentives to encourage investment by private industry and individuals in securities issued by the secondary mortgage market (see Enterprise Fund Proposal, Economic Element, Chapter 2).

Strategy 3: *Density as a lower-cost housing option.*²⁴

The suburbanization of entry-level single-family development on the edge of the region posed significant environmental, open space, endangered species habitat and agricultural use tradeoffs. Many low cost units were lost during the decade in older urban areas where new multi-family development was concentrated. Vacancy levels were high for home ownership housing and increased markedly for newly built rental housing due to absorption problems related to its affordability. The social environment of many urban neighborhoods was a serious problem and extended beyond housing issues. A balance and mix of housing densities, and building types besides the single-family home on its own lot, is emerging in response to high housing costs in the region²⁵. But it is not enough to satisfy demand.

Even though the single-family home in outlying areas was the most popular housing type constructed, there were also trends toward constructing higher density housing and lower density mobile homes, both were a response to high housing costs and site availability. Higher density housing spreads fixed development costs over more units on smaller sites and mobile homes allow new construction cost efficiencies on cheaper land.

For example, density increases can reduce per-unit development costs by spreading a projects fixed costs over more units. However, when density bonuses or higher-density projects are proposed, there are often other issues such as traffic impacts and neighborhood compatibility that discourage the increase and raise the concern of neighbors. Because of differences in community receptivity about densities, developers themselves avoid proposing them. NIMBYism (Not-In-My-Backyard) is a particularly vexing problem in achieving affordable housing goals. This occurs when residents perceive lower cost housing as a threat to their own property values.²⁶

Reducing land costs in affluent and distressed areas coupled with across the board reductions in all the major factors that contribute to housing production costs, especially parking requirements and fees related to affordable housing, can put housing within the reach of a larger group of potential owners or renters (see Figure 6-17). Higher construction costs in affluent areas result from substantially higher land costs and small site, higher density problems that increase costs associated with structured parking and higher-density construction. Higher-density is assumed to be 20-to-30 units per acre or more. This is the density at which parking can no longer be accommodated in woodframe garages or surface lots, but must be accommodated in a concrete structure. Increased parking costs escalate at higher densities primarily due to lower overall efficiency of the building. More space is devoted to corridors, stairways, hallways and entrance ramps.

Mobile homes have the highest incidence of ownership of any building type (85 percent). Yet only 4 percent of all households in the region live in this type of lower density housing, mostly retired senior citizens.

²⁴VCOG recommended to increase housing production cities and counties should consider increasing housing densities in selected areas.

²⁵Subregional input Arroyo Verdugo, San Gabriel Valley and WRCOG.

²⁶In *Affordable and High Density Housing: Myths and Facts*, dated September, 1993, the Californian Planning Roundtable discusses this and other concerns related to higher density housing. They assert, for instance, that property values are not adversely affected by lower cost and higher density housing.

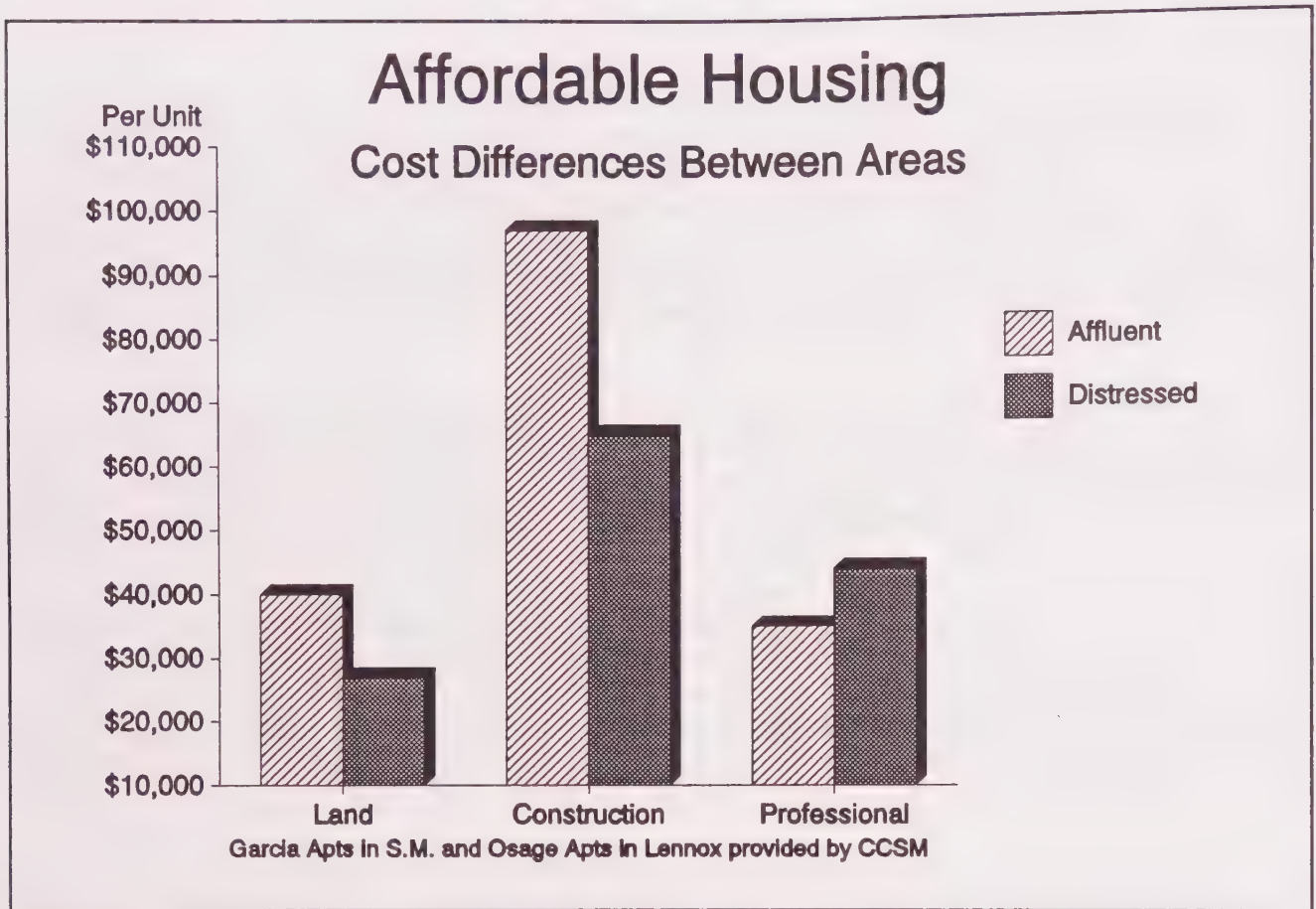


Figure 6-17

During the 1980s, the percentage increase in mobile homes rose significantly in Southern California, especially in desert and non-metro areas. Next to single-family-attached housing, it was the second fastest growing building type constructed in the region. Mobile homes were concentrated in Riverside, north Los Angeles and San Bernardino Counties.

Single-family attached housing, which brings the tax advantage of home ownership to apartment dwellers, was rarely seen before 1970 but has grown steadily in importance. In urban areas of Los Angeles and Orange counties, many apartments were lost through conversion to condominium use. Owner-occupancy in this building type increased from 44 percent in 1980 to 57 percent in 1990, while occupied units in this building type increase 75 percent. This is the fastest growing type of housing in the region. About 7 percent of all households in the region live in single-family attached housing.

Another higher-density-type, multi-family housing also increased significantly in the 1980s. Apartment construction of buildings of five units or more increased a hefty 17 percent and was spurred by changes in the tax law in 1986. Almost 75 percent of these units were occupied by households in living south Los Angeles county. Almost 1.3 million households live in this type of housing in Southern California. Only occupancy in single-family detached housing on its own lot exceeds this figure. About 2.6 of the 4.9 million households in the Southland live in a home with its own yard—an "American Dream" living situation.

A new housing accommodation category emerged in 1990. The "Other" category was created by the Census Bureau to describe homes that occupants did not define as a housing unit. About 51,000 homes fell into this category, with two-thirds located in south Los Angeles County. This housing may have been illegal or non-traditional. It was an important housing resource due to its low-cost or use as lodging.

Using a full range of density options can help accommodate a growing and changing population and avoid the proliferation of illegal lower cost housing.

Recommendation

- Each jurisdiction should preserve single family areas and provide sites and zoning for multifamily areas that allow affordable housing development that avoid costly structured parking and high density construction solutions.

3. Goal: Housing stock maintenance and preservation.

Strategy 1: *Preserve affordability of older housing after refurbishment.*

The 1990 Census counted 5.3 million housing units in the Southern California, an increase of 20 percent during the 1980s. This increase was higher than the United States increase of 16 percent. But almost 2 million units in the region (40 percent) have been built before 1960. These units are concentrated in older cities in south Los Angeles County (see Figure 6-18). The proportion of older housing is higher for rental units than owner occupied units, especially in the greater Los Angeles area where one-third of these older units are located.

The decade-to-decade increase in older units was 72 percent. Almost 900,000 units turned 30 years old during the 1980s. Not all of these units are in a state of decline with age, and many have increased in value through housing improvements, such as renovations and additions and high levels of property management. However, it is also true that older housing can be expensive to maintain, may lack modern equipment or amenities and may be located in less desirable neighborhoods (see Figure 6-19).

HOUSING STOCK OVER 30 YEARS OF AGE

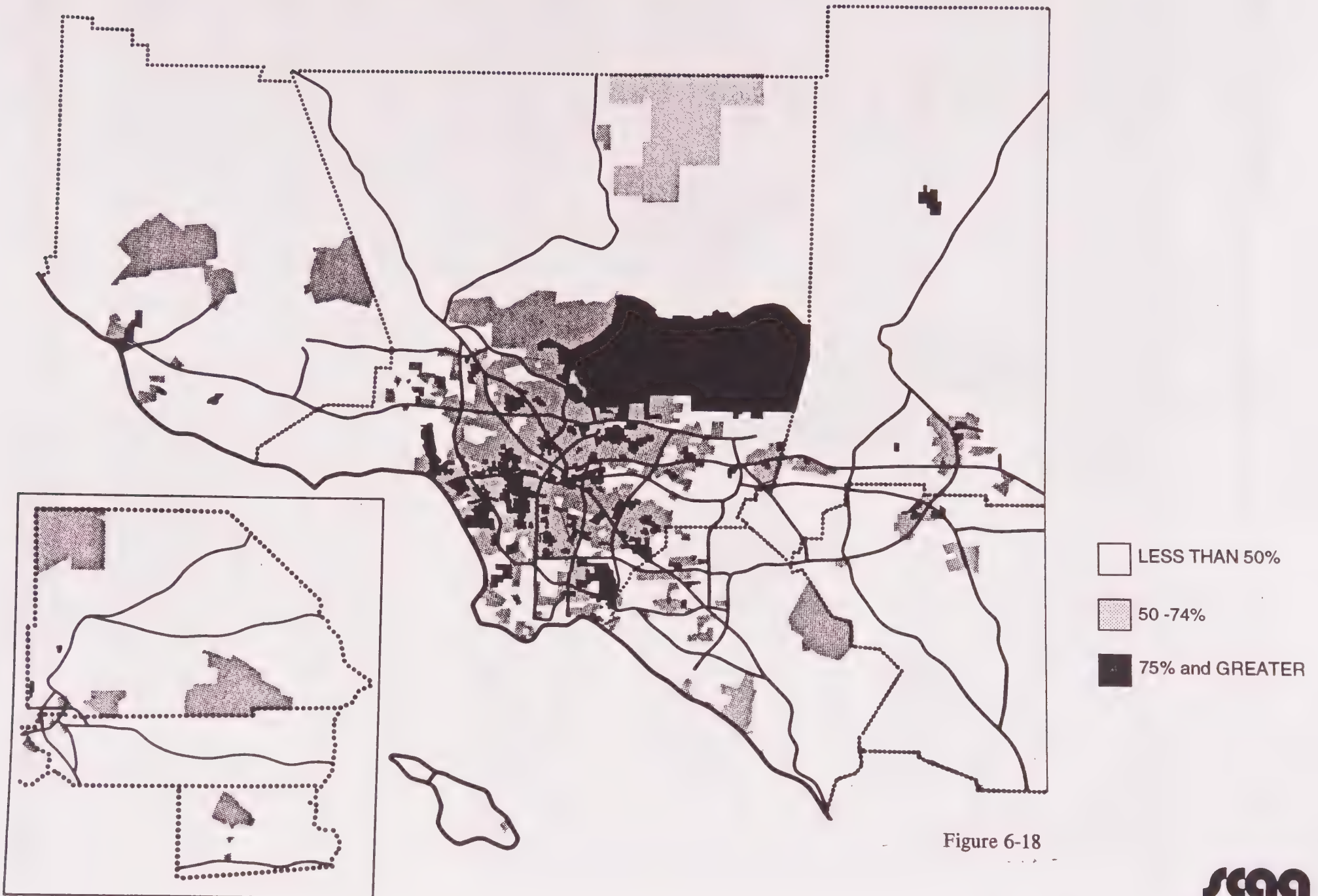
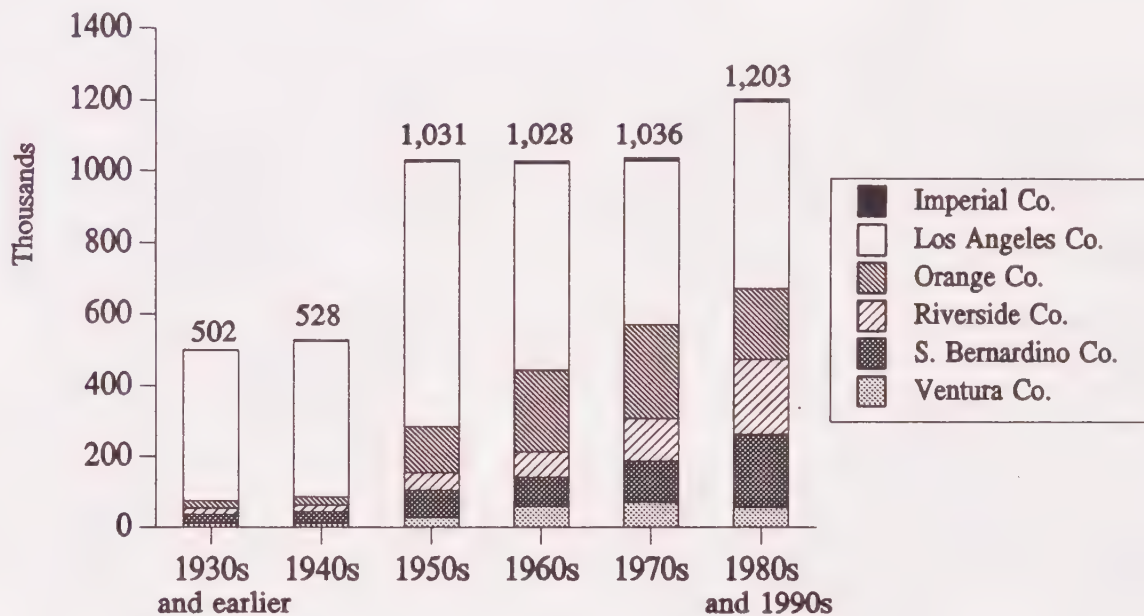


Figure 6-18

Housing by Age, 1990

The likelihood of a housing unit being removed increases with age. About 40% or 2 million units are 30 years and older. Most of the older housing is located in South Los Angeles County, while newly built units are concentrated in suburbanizing areas.



Source: 1990 Census

Figure 6-19

Remodeling, recycling, refurbishment or demolition occurs within the older housing stock²⁷. It also is more prone to conversion and shift in tenure from owner to renter. Older single-family rental units are the most prone to removal.

The likelihood of a unit being removed from inventory increases with its age. This is what makes housing preservation so important since it extends the life of relatively affordable and less-expensive housing. It also postpones replacement with a more expensive newly built and, likely, higher-density unit. In many areas, older low-cost unit removals exceed the production of new subsidized housing intended for the same lower income population. Older units are the mainstay of the affordable housing inventory and urban reinvestment and preservation are needed to safeguard it as a future resource.

²⁷ SELAC subregion recommended that a subregional program be designed and implemented for the recycling of aging housing stock and related infrastructure improvements to discourage the flight to other areas.

Recommendation

- Municipalities should adopt goals to preserve and enhance the quality of the older housing stock in the region since market incentives by themselves are insufficient to support costs of refurbishment.

4. Goal: Promote a mix of housing opportunities regionwide.

Strategy 1: *Social equality and equal housing opportunity.*

During the 1980s, the built environment provided less of a mix of housing opportunities. Geographically, Southland society separated into areas where residents and newcomers were well-housed and ill-housed. Housing equality lessened as the isolation and concentration of poorer households in several areas of the region and in older housing continued. The sharp differences in housing costs between subregions and metropolitan market areas contributed to this pattern.

Lower-income households were concentrated in south Los Angeles County, central Orange County, the area between the Pomona and San Bernardino freeways going east toward the cities of Riverside and San Bernardino (10-60 Corridor), Oxnard-Ventura area, desert areas, and Imperial County (see Figure 6-20).

The areas concentrated with low-income households, a majority of which are Black or Hispanic (see Figure 6-21), contained much older housing than elsewhere, had fewer residents that owned homes, experienced significant increases in housing values and rent, experienced high levels of crowding, and residents paid more than one-third of their income for shelter.

These locations were also concentrated along transportation corridors and in central metropolitan areas where many jobs and transportation centers were located. But these areas were also characterized by greater concentrations of blight as compared to suburban locations. Low-income people in these areas mostly rent, while in desert and rural areas they often own their own homes.

From a public policy standpoint, what requirements and incentives are there for local government, voting public and all residents to make tough choices that would enable new affordable housing for owners and renters more broadly available and where it is needed to relieve pressure on environmentally sensitive areas most everyone would like to see undeveloped or unchanged? How does the region grapple with the problems of ill-housed families and individuals.

One major vehicle for addressing these issues is the RHNA program which, is mandated by the state. The other is the ballot box.

In addition to the total requirements for new construction and addressing local existing needs of ill housed families and individuals, State law requires that a RHNA contain a planning adjustment to reduce the concentrations of lower income households in jurisdictions where they are disproportionately represented relative to their representation in the whole regional market. Factors that must be considered include existing and anticipated job-based demand for housing by the work force and the current proportion of lower income households.

MEDIAN HOUSEHOLD INCOME

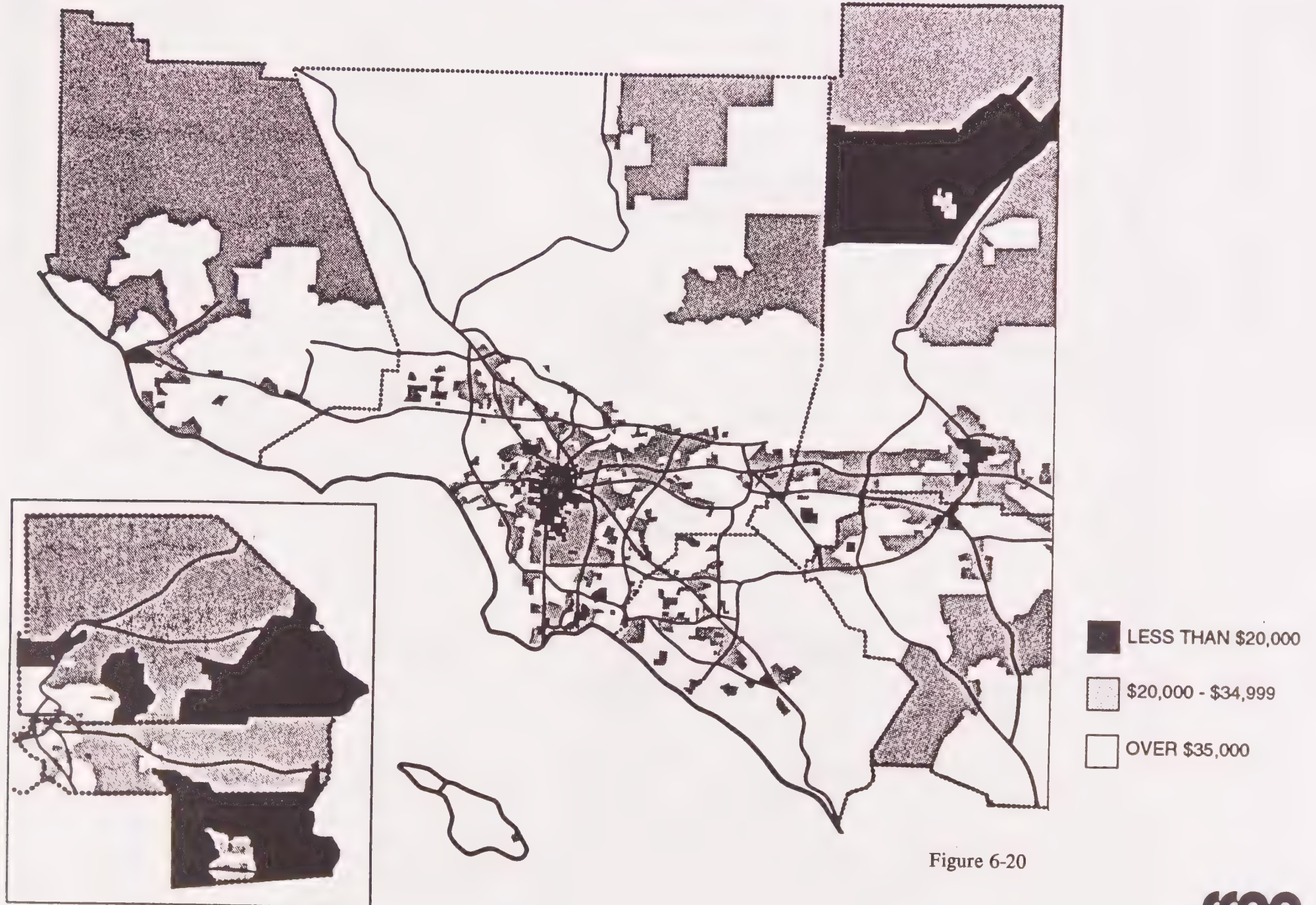


Figure 6-20

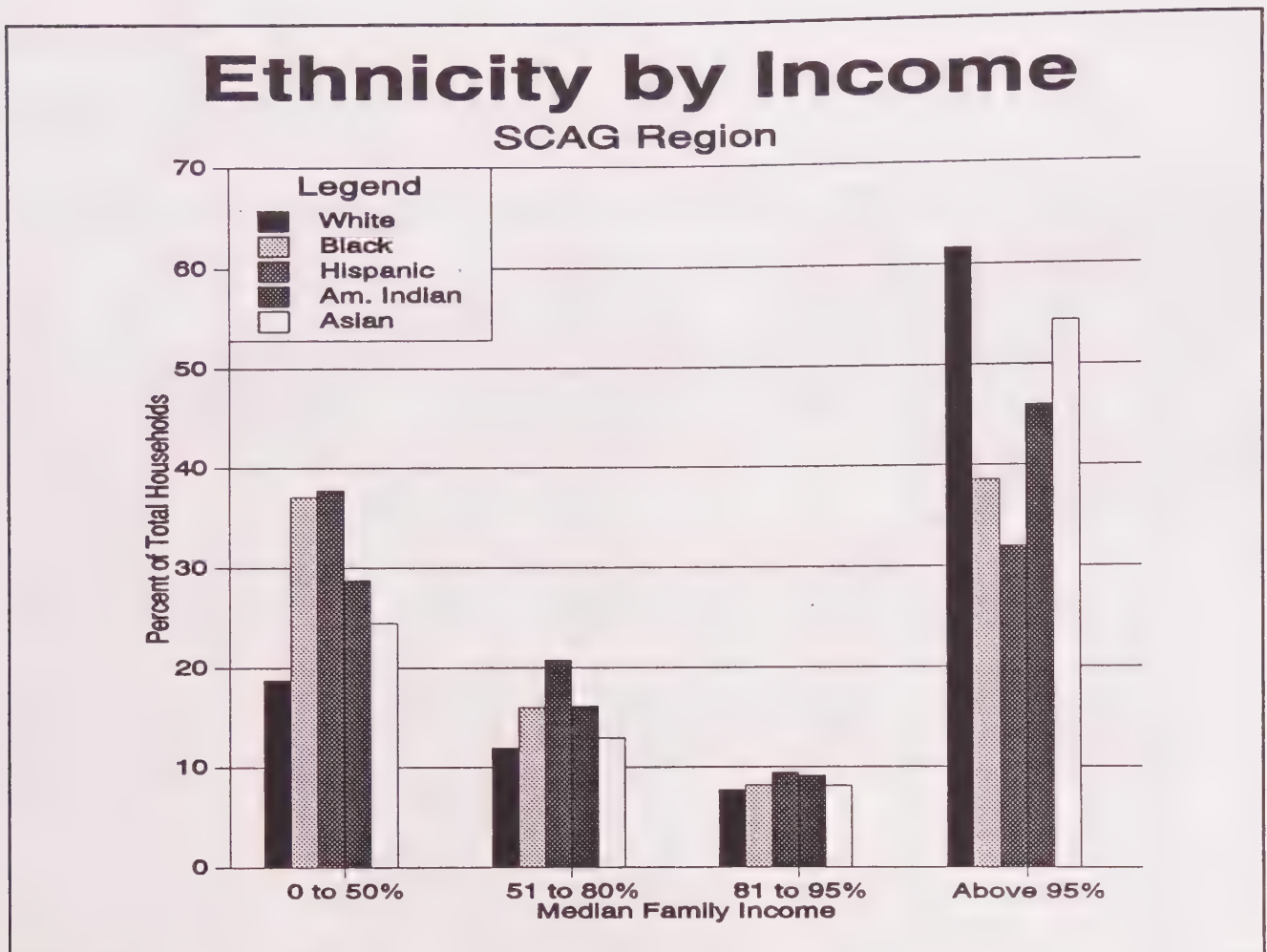


Figure 6-21

Without an adjustment policy, households earning less than \$40,000 (lower-income) in most subregions would be locked into present locations by the planning process. The chief objective is to bring communities closer to the regional average for the percentage of households that have lower incomes. Communities with too many lower-income households would be brought down, while communities with below average lower-income numbers would be brought up. The policy decision of SCAG members is that each community should close one-quarter of the gap ("25 percent" of the way) between their current percentage and their regional average. This small adjustment allows for the continuation of local differences, and ensures that planning policy will nudge communities toward greater equality over time.

Planning policy may come in conflict with the ballot box wishes of local residents. Some critics contend that high housing costs are unduly influenced by local regulations—mainly zoning regulations that require low densities—because there is a perception that the property value of homes would decline if lower cost units are nearby (state HCD studies show it may not), fears that lower-income neighbors bring social problems, and that the higher-density often required by affordable housing brings traffic, congestion and other quality-of-life difficulties. Underlying these perceptions are the fiscal realities that housing is a tax consuming and not a tax generating activity for the local governments in built-up areas.

The California Environmental Quality Act (CEQA) also appears to emphasize a project-oriented review system rather than one that accounts for regional environmental costs and impacts. For instance, if densities or zoning are reduced below levels that permit construction of a balanced share of subregional growth, there is no mechanism to ask what the environmental costs will be to the region if housing must instead be built elsewhere.

Housing policy and affordable housing siting issues may also be difficult to resolve in areas where a smaller group in the general population is the majority group in the voting population. A generation gap exists between younger renters, mostly minority households, and older homeowners, mostly non-Hispanic Whites. These groups have substantially different age-related housing demands and cultural backgrounds. This may make the acceptance of new affordable rental and first-time homeowner opportunities in areas with higher home ownership rates controversial, especially if an Article 34 referendum is needed to publicly finance the development.

For example, In 1992, the two-tiered nature of California society became increasingly evident in the political arena as well as in terms of residential housing patterns. A Field Institute study on political demography found that homeowners were more likely to be registered to vote than renters. Currently, 71 percent of residents who own their own home are registered, while 56 percent of the state's renters are registered. Whereas 41 percent of all adults are Hispanic, Black, Asian or some other minority, just 19 percent of all voters were from these voting groups in the June 1992 California Primary. The median voting age is 50 years old and rising. Non-citizen immigrants are not eligible to vote.

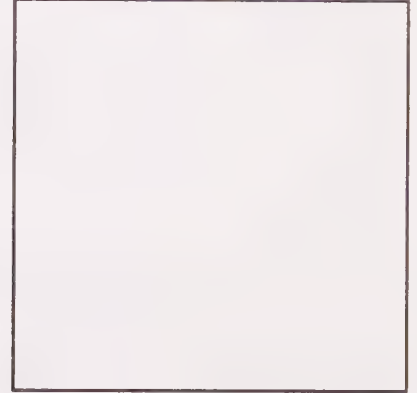
A mix of housing opportunities by building type and income level is needed to assure social equity and equal housing opportunity²⁸. The lack of a socioeconomic mix of households throughout the region also affects the quality of life for everyone and balance of housing supply available to the work force. All levels of government and the private-sector should be involved in developing goals, actions and policies that address these issues.

Recommendations

- Every community should ensure a mix of housing opportunities and building types in order to achieve equal housing opportunity, balanced development and social diversity goals.
- All residents need to view their housing needs as connected to the needs of other households in the market place. The political resentment against growth is a serious constraint on developing housing solutions for accommodating a changing population's housing needs.

²⁸Recommended by Arroyo Verdugo, San Gabriel Valley, and WRCOG

Chapter 7



HUMAN RESOURCES AND SERVICES

- Introduction
- Goals
- The Changing Region
- The Human Services System
- Other Issues
- Investment Strategies for Communities in Need

A. INTRODUCTION

During the 1980s the population in the SCAG region grew by 3 million people for a total of approximately 14.6 million residents. The number of foreign-born residents increased by 1.8 million between 1980 and 1990. Two-out-of-three newcomers were of Hispanic origin. Residents of Asian heritage nearly doubled during the decade, becoming the fastest growing segment of the population, while non-Hispanic Whites declined to less than 50 percent of the total.

According to SCAG's projections, the region's population will increase to 20.5 million by the year 2010, which means that an additional 6 million people will have to be accommodated. Changes in the demographics experienced during the past decade are expected to continue, with the non-Hispanic White population becoming 36 percent of the population in 2010. The African-American population is expected to

remain stable at about 8 percent, but the percentages of Hispanic and Asian/Other populations are expected to continue to increase significantly.¹

California's diversity poses many challenges. The fastest growing segments of the population, which are young and of color, will be responsible for the services that an aging, predominantly White middle-class will require. In the political arena the body of voters does not yet represent Hispanics and Asians proportionate to their numbers in the population, and these groups are beginning to demand political power commensurate with their numbers. As the diversity of the population increases, intergroup relations become more important.

Public, private and non-profit organizations must understand and flexibly respond to different communities and to the varying needs of their residents. To develop inter-group harmony, existing organizations must work to build dialogue at the community level and create forums where local issues may be addressed. These organizations must break down existing barriers to link these communities and build a greater sense of cooperation and cohesion among them. By involving all segments of the community, organizations can marshal all available resources into one concerted effort to improve people's lives.

B. GOALS

The Human Resources and Services chapter of the Regional Comprehensive Plan (RCP) deals with issues related most directly to the well-being of the region's residents. Whereas all the chapters in the RCP are related to issues that affect the quality of life in the region—its economy, mobility, the affordability of homes, protection of open space, availability and quality of water supplies, quality of the air, and hazardous waste management—this chapter focuses on people as individuals, on the opportunities to develop their full potential physically and mentally and on the services required to meet people's needs and help them achieve their personal goals and allow them to participate fully as active citizens.

Consistent with the goals of the RCP—a rising standard of living, a healthy and environmentally sound quality of life, and achieving equity—the goals of this chapter are the following:

- Provide basic human services to families and individuals to foster human dignity of every individual.
- Promote opportunities for all individuals to find self-sufficiency, dignity and meaning in their work.
- Promote safe, vital communities in which cultural, educational and recreational opportunities are available and accessible to all residents.
- Address the needs of the poor and the disadvantaged and engage them in working constructively to break the poverty cycle.

¹ Population descriptions correspond to terms in the U.S. Census.

- Transform economically depressed communities into dynamic, successful, and healthy entities with a skilled workforce.

The recommendations in this chapter to fulfill these objectives do not create new legal mandates for local governments or other regional governmental organizations.

C. THE CHANGING REGION

According to the U.S. Census, more than one-fourth of the residents in the SCAG region are foreign-born, and 30 percent of those immigrants—a total of 1.8 million—entered the United States between 1980 and 1990. The proportion of foreign-born residents increased from 19 percent to 27 percent of the population between 1980 and 1990. SCAG projections for future growth indicate that the proportional share of the Hispanic and Asian populations will increase, while the proportion of Non-Hispanic Whites will continue to decline.

While the number of elderly in the region is projected to continue to increase, the regional median age is expected to increase only slightly—from 30.6 in 1990 to 32.3 in 2010. Because approximately 75 percent of the population growth will be due to children born since 1990 and because immigrants are typically young, the median age will remain lower than the state and national average. (The Growth Management chapter of the RCP includes a comprehensive discussion of the population trends in the SCAG region.)

SCAG's projections show the number of jobs in the region will rise from 7 million in 1990 to 9.8 million in 2010, an increase of 39 percent. Employment increased by more than 66 percent in the 18 years from 1972 through 1990. Therefore, the projected 20 year increase in employment does not compare favorably to the region's past performance. The region's 9.3 percent average unemployment rate for 1992 is much higher than the 1990 average of 5.5 percent, and the unemployment rate is likely to remain high. The combined SCAG regional forecasts of population, labor force, and jobs indicate that the labor force over the next twenty years would exceed the number of jobs by more than 8 percent.

The chapter on The Economy assesses the region's economy—its history and strategies for economic prosperity and equity. However, it is necessary to also address the need for services for the future workforce, indeed for all residents—services for children and youth, training and development, and services for specific populations.

Although the cities and the counties in the SCAG region have been important providers of human services throughout the years, there are increasing concerns about gaps in the network of human service providers. Reductions in government funding have created increased pressure on limited resources in the community, both public and private. Not only is there less public money available to support existing programs, but organizations, which must look to the private sector for support face increasing competition for available funds.

The region must find new structures to provide these needed services. For example, the integration of social and health services at neighborhoods, preferably at or near school sites, would help the human service delivery system be more effective, efficient, and accessible. The poorer the people, the greater the need for

nearby resources in their communities. Schools are also trusted institutions where children and their families can easily access services. Additionally, coordination between schools or other local institutions and public and private agencies providing social and health services can offset geographic inequities in service distribution.

Coordinating the delivery of services at the local level will simplify the layers of bureaucracy through which resources are delivered. Schools, however, must be provided the resources to deliver any health and social services. Teachers need to concentrate on educating students and not be burdened with additional responsibilities.

FINDING SOLUTIONS

Desirable solutions to the region's social problems should be developed by the community through community-based associations, which should be encouraged. These associations can serve as vehicles for nurturing the development of capable leaders and ensuring that the design and delivery of services take place at the local level.

Community-based organizations typically evolve when neighborhood residents decide to work together to solve a common problem. However, organizations cannot be sustained when they have a limited agenda. Community-based organizations need to diversify their agendas to achieve lasting improvements in their communities. By organizing around the issues important to residents, associations can help create more stable communities that offer a sense of identity and belonging, opportunity and hope. That cohesion will result in public safety and reduced crime and will overall improve the quality of life of all residents.

Neighborhood associations need to be structured to allow members to interact with public officials in reviewing project proposals and monitoring local and citywide issues. Citizen participation in public decision-making not only promotes citizenship training, but conflicting interests and emerging needs can be identified and resolved more quickly.

A major challenge faced by community groups is limited resources—money available from local donations and fundraising events is rarely enough to support them. One possible approach might be to establish "sister-community" relationships between "communities with capacity" and "communities in need." When communities come together, not only do they develop a greater understanding of each other and confront common problems, they also allow communities in need to have better understanding and interaction with the system. By working together, residents can acquire professional, entrepreneurial, and political skills. Interaction between neighborhood associations and between the associations and traditional institutions can further foster the mutual understanding and respect necessary to deal with the region's social problems and support the goals of this plan.

D. THE HUMAN SERVICES SYSTEM

Millions of dollars are being channeled through thousands of agencies and organizations throughout the SCAG region to provide human services to residents. Yet, the needs of many people are not being met because they have limited information and knowledge of the available services, and many of these services

are inaccessible to those who need them most. Because of funding and other restrictions, service providers typically concentrate on the services they provide rather than focusing on their clients needs. The integration of human services, which is essential to fill the gaps, does not mean program consolidation into a single structure. Rather, it means linking resources and services more effectively, so that a continuum of services is available to help individuals gain economic self sufficiency and personal well-being.

The demographic and economic changes occurring in the region have placed a heavy burden on the human services delivery system. Studies by various groups, such as The 2000 Partnership, United Way of Greater Los Angeles, and the NARC/Ford Foundation Project, have suggested the establishment of a consortium of human service providers at the county level.² The consortium would increase the efficiency and responsiveness of the delivery system by establishing an information network among agencies and other providers, helping match services to facilities, and coordinating the delivery of services at the local level.

Recommendations from SCAG subregional organizations include the establishment of a Human Relations Commission in each of the SCAG subregions and regularly scheduled conferences sponsored by SCAG and the subregions to enable these commissions to share ideas.³ The subregions could also provide a forum, creating consortiums between service providers and local communities. This approach would help disseminate information regarding currently successful programs throughout the region -- such as drug and alcohol programs, youth programs, training/development programs, as well as programs to improve public safety and reduce crime. This chapter examines three specific program areas:

- Services for children and youth, particularly those designed to prevent delinquency, gangs, teenage pregnancy, and other related problems.
- Services that improve employment opportunities, particularly for the young and the disadvantaged and for unskilled persons and groups lacking English proficiency.
- Services for displaced individuals—including the homeless, the medically indigent, and the elderly.

RECOMMENDATIONS:

- Develop a method to track and evaluate the delivery of services.
- Identify duplication and gaps in services and coordinate and integrate service providers to reduce the duplication and eliminate the gaps.
- Design and deliver services based on the needs of clients, not on the service agencies' historical preferences.

² An example is the Los Angeles 2000 Committee's 1988 report, *LA 2000, A City for the Future*.

³ Subregional input: South Bay Cities Association, Coachella Valley Association of Governments, Southeast Los Angeles County.

- Develop an information database to link those in need of services with those who can provide the services.
- Provide linkages between business and the educational community for the development of support programs and resources to impart on students the skills, knowledge, and attitudes necessary to be successfully employed.

1. SERVICES FOR CHILDREN AND YOUTH

Early education and intervention in identifying and helping children at risk as early as possible in their formative years is a sound investment. Children in families confronting multiple problems need early support so that they remain in school and develop the basic skills they need to succeed in the job market. Studies show children who enjoy the benefit of early education programs become better students. Better students become more productive employees able to pay higher taxes and thus continue to fund the necessary services for future generations.

Coordination between schools and the public and private agencies providing social and health services can improve access to these services for families and their children by bringing services at or near school sites. Coordinating services so they are linked to schools can also help offset any geographic inequities in service distribution.

In assessing the human services system, experts in the field of education and human services have concluded that the current system fails children for many reasons, particularly the following:

- Services are crisis oriented and are designed to react to problems rather than to preventing them.
- The problems of children and families are divided into rigid, distinct categories that fail to reflect interrelated causes and effects.
- Separate and often conflicting eligibility standards and regulations govern the allocation of funds--as a result, providers tend to focus on one solution per specific problem.
- Specialized agencies are unable to provide comprehensive solutions to complex problems.
- Because service providers must compete for scarce resources and protect their turf, there is a lack of communication and cooperation among the vast number of public and private sector agencies.

SERVICES FOR CHILDREN AND YOUTH - GOALS

- Plan and promote the coordination of services for all children and their families in the region to ensure their development and well being.
- Develop multipurpose neighborhood facilities to provide health, educational, recreational and social services to residents—including outreach and referrals.

- Provide bilingual information, translation and interpretation as needed to serve all residents, while assisting all residents to become proficient in English.

RECOMMENDATIONS

- Change eligibility standards and regulations governing the expenditure of funds to allow children and their families to receive a full range of services.
- Public and private sector human services providers should share models and other information about programs so that they will effectively do the following:
 - Provide programs and services at early childhood and pre-school levels.⁴
 - Provide after-school and summer enrichment programs for children including arts and crafts, painting, drama, music, gymnastics, sports, reading, science, computer training, and leadership skills. Educational services for youth should include remedial education and college counseling.
 - Provide services to youth at-risk with positive alternatives to gang activities, drug or alcohol abuse, truancy, or other anti-social behavior through counseling, social services and remedial tutoring.
 - Provide counseling and referral services for runaway youth, including information about drugs, alcohol, sexually transmitted and other communicable diseases, comprehensive substance abuse programs, and vocational services.
 - Provide programs for families with special stress problems, such as child abuse and potentially abusive adults including outreach, evaluation, intervention, and a crisis hotline.

2. TRAINING AND DEVELOPMENT

The economic future and quality of life of Southern California are considered in peril due to the loss of high-paying industrial and manufacturing jobs, which have traditionally provided the best economic opportunities for newcomers. Southern California has developed a dual economy: one in which workers who have a high school diploma and some college education earn high wages in entertainment, aerospace, high-tech, finance and business services, and another in which mostly non-White and immigrant workers who lack education and skills earn low wages in apparel, textile, and service jobs.

As a result of economic competition, there are increasing ethnic and racial tensions. Yet, there are strengths inherent in diversity that must be tapped, and that offer hope and opportunity for building a healthier future. Although rapid immigration generates some adverse effects on the state's infrastructure, the influx of highly-

⁴ Subregional input: Coachella Valley Association of Governments.

motivated, trainable individuals provides California with enormous advantages in the world economy. These workers are not limited by traditional ways of looking at problems and, when given proper training, they can come up with innovative ways to improve production. Immigrant entrepreneurs with firms in such emerging fields as computers, biotechnology, environmental engineering, software, and telecommunications contribute to California's continuing dominance on virtually every list of the nation's fastest-growing businesses.

There will, however, be few employment opportunities for those unable to read, write and speak English fluently and perform basic mathematical computations. Success in today's economy depends on basic skill competency. Workers must have basic skills, otherwise the SCAG region will be faced with both increasing underemployment and unemployment among the least skilled and a shortage of skilled workers.

Coalitions of major forces in the region, such as LEARN (Los Angeles Educational Alliance for Restructuring Now), are advocating changes in the education system to improve the skill level of residents. These groups advocate structural changes, including teacher autonomy, school-based management and shared decision making, parental involvement, raised expectations for academic performance, clear goals, accountability for all stakeholders, and development of meaningful assessment tools. Reform will require cooperation among concerned parents, political leaders concerned about the future of the region, and business leaders concerned about the skills of future employees.

Businesses can take their own specialized training into the schools through employee development programs. Employment-bound students need to be aware of the skills they will need to enter the workforce and the types of career opportunities these skills will bring. If students understand the benefits of acquiring the essential skills, they will be motivated to remain in school and excel academically. Following are various programs connecting students to the workplace:

- Mentorships provide role models by having business professionals spend time with students in the school or in the workplace. The objective is to expose students to resources they might not otherwise find on their own, and to encourage and reinforce new behaviors, attitudes, and ambitions.
- Specialized Curriculum make available to students employment development programs being used in the business community, such as seminars, workshops, conferences, and training videos, to enhance school curriculum and serve as a resource for instruction.
- Worksite Visitations provide teachers and students with special opportunities to see how classroom skills and training are used in the work place.
- On Campus Volunteers businesses should permit and encourage employees to participate in classroom situations working with teachers as a resource.
- Scholarships establish funds through corporate giving to provide scholarships and financial assistance that increase opportunities for vocational and technical training and continuing education.

Benefits to businesses participating in partnerships with schools include development of a skilled and productive workforce and better prepared future employees; development of a workforce in fields where shortages exist; and improved public/community relations.

The chapter on the Economy points out that professional service industries, which usually pay high wages, value a highly educated workforce -- along with quality of life considerations -- as dominant factors in business location decisions. Through successful business-academic relationships, students can acquire the skills essential to attract and support future job opportunities in the SCAG region.

TRAINING AND DEVELOPMENT - GOALS

- Motivate employment-bound high school students by making them aware of the link between academic achievement and success in future employment.
- Foster a common understanding among students, teachers, and the private sector of the skills, knowledge, training, and attitudes necessary to succeed in the work place.

RECOMMENDATIONS

- Use a standard definition of the skills required by industry to integrate training conducted in different schools.
- Organize a network of schools to provide training for forecasted high-demand occupations.
- Partnerships between the private and public sectors and non-profit institutions must aim to assure trainees employment.
- Programs should be developed to give members of disadvantaged groups the basic skills required to start their own businesses.
- Training facilities should be accessible to lower-income communities.
- Academic programs should be supplemented by on-campus employment-related services, such as advice for job interviews and motivational seminars to eliminate internal barriers to advancement (low self-esteem, poor image, lack of self-confidence.)

3. SERVICES FOR SPECIFIC POPULATIONS

Assessments of the needs of all segments of the region's population are necessary to develop and implement services. Data must be gathered through various methodologies, including demographic data, assessments for particular target groups, household surveys, special group surveys, and public hearings to identify the needs of particular communities. Increases in the numbers of elderly, homeless, people with disabilities and other special populations have implications on the types of human services required to meet their needs.

- What special groups are there, and where are their members concentrated?

- What growth is expected in these groups?
- What are their special needs, and what can be done to meet these needs?

The region must not only meet the needs of the elderly people who are at risk today, it must also shape services to respond to an elderly population that will continue to increase in size. Elderly people with lower fixed incomes are at the same time more service dependent. Policies and programs developed must aim at keeping older people involved in all aspects of the community.

The homeless population increasingly includes young people and families with children. The alcoholics, the deinstitutionalized, and the substance abusers have been joined by young runaways, the recently unemployed, and families often comprised of single women with children.

SERVICES FOR SPECIFIC POPULATIONS - GOALS

- Increase the opportunity for greater independence among all the region's populations, including the elderly, the homeless, and those with disabilities.
- Provide the necessary level of support and choice in community-based care so that the disadvantaged are able to maintain themselves in independent living and to maximize their quality of life.
- The short-term intervention to address homelessness must deal with the problem of survival for those without shelter and support services. However, the ultimate goal is to find permanent shelter and employment for the homeless and return them to the mainstream of society.

RECOMMENDATIONS:

- Provide local jurisdictions with community-based service facility data to assist the service organizations to place their health, social, and welfare programs in structures accessible to those with disabilities, the elderly, and the homeless.
- Promote the "service-hub" concept, small-scale, community-based facilities in close geographical proximity to function as an integrated unit. The basic elements of a support network could be added to existing infrastructures, such as shopping malls and community centers.
- Provide comprehensive nutritional, recreational and geriatric health services for seniors, as well as information and referral services.
- Provide transportation to service centers to participants with ambulatory limitations.

E. OTHER ISSUES

1. ALCOHOL AND DRUGS

In September 1988, California enacted legislation that encourages counties to develop a Master Plan to address alcohol and drug problems. The purpose of the process is to increase coordination and collaboration among the health, education, social services and criminal justice systems. Alcohol and drug-related problems involve issues of prevention and treatment—the need for alcohol prevention, treatment, and recovery services, and the need to develop public policy to address alcohol and drug problems. Prevention issues address the total environment in which alcohol and drug problems occur. Treatment issues are concerned with the design of services and allocation of funds to different service categories.

There are many public and private programs throughout the region that address alcohol- and drug-related problems. The services provided by these programs reflect different but often complementary and interrelated strategies, including research and evaluation to understand the nature and scope of the problems; public policy strategies and enforcement and intervention activities to establish social controls over supply, demand, and consumption; prevention efforts to influence behaviors leading to drug use and high-risk alcohol consumption; and recovery and treatment strategies to assist individuals, families, and communities to overcome existing problems.

Service providers compete for scarce resources and must structure their activities to conform to the dictates of the various and sometimes conflicting legislative, administrative, and contractual requirements, rather than to community needs. Not only do these requirements often discourage interagency cooperation, coordination and sharing of resources, and interdisciplinary approaches to the problems, they also limit the flexibility of service providers to respond to changing community needs. Alcohol and drug problems are pervasive elements of a broader spectrum of individual and community problems, and solutions must include a wide range of health and human service endeavors.

RECOMMENDATIONS:

- State and federal funding available to meet the demands for services should be fairly distributed throughout the region.
- There should be adequate services for special target populations that are underserved by traditional programs, such as minority groups, women, the disabled, youth and the elderly.
- Programs for criminal offenders need to include services to help this population recover from alcoholism and drug addiction, while they are incarcerated and after they are released.
- The agencies involved should develop cost-efficient programs for people with dual diagnoses of mental illness and alcoholism or drug addiction.

- Local governments must address public policy issues related to the placement and operation of alcoholic beverage outlets throughout the region (the proliferation of these outlets) and the manner in which alcoholic beverages are marketed (the content of alcoholic beverage advertising).
- Retailers of alcoholic beverages must ensure that their products are marketed in a responsible manner.
- Strategies are needed to identify and suppress crack houses and drug sales activities.
- Media campaigns need to emphasize the relationship between drug and alcohol use and a wide variety of community and social problems (such as child abuse, crime, domestic violence, rising health care costs, and overcrowding in jails.)
- The public should be informed about the dangers of drinking and drug use during pregnancy.
- Provide youth with accurate information about the health risks of using alcohol, tobacco, and illegal drugs and with training in effective techniques for resisting peer pressure to use those substances.

2. AIDS AND OTHER CATASTROPHIC ILLNESSES

Acquired Immune Deficiency Syndrome (AIDS) is an impairment of the body's immune system caused by the Human Immunodeficiency Virus (HIV), a retrovirus which directly attacks portions of the immune system. Affected individuals become vulnerable to illnesses, including infections, rare cancers, and neurological manifestations. Individuals infected with HIV may not test positive for HIV antibodies for several months, and the virus can be undetected yet transmissible through sexual contact, blood transfusions, or the sharing of needles used to inject illicit drugs.

RECOMMENDATIONS:

- Foster planning, networking, and coordination among local agencies and organizations directing AIDS awareness activities and providing AIDS related services.
- Involve all segments of the community in developing linguistically- and culturally-sensitive materials and programs for communicable diseases (such as hepatitis and tuberculosis), AIDS, and other catastrophic illnesses.
- Provide information regarding social services programs, community services and resources including referrals for medical, legal, counseling, and emotional support services, home delivered meals, adult day care, and transportation.

3. SAFETY

In the aftermath of the April 1992 disturbances, Los Angeles and various surrounding communities have often been portrayed as places where crime is out of control, and safety has become a major concern throughout most of the SCAG region. The problem of adolescent crime has particularly attracted the attention of the public, as the evening news give daily accounts of gang-related violence.

In 1977, California passed the Determinate Sentence Law emphasizing punishment, instead of rehabilitation, as the purpose of prison. This law required mandatory prison sentences for many offenders formerly eligible for probation, and it increased the rate at which probation and parole violators were returned to prison. As a result, there has been an alarming increase in the California corrections population, at a tremendous cost.

As policy makers address the increasing concerns with violence, they must focus on the need to invest in early prevention and intervention. According to the Children's Defense Fund, every \$1 spent on early prevention and intervention saves \$4.75 in costs of remedial education, welfare and crime. The cost to the California taxpayer for one year in prison per inmate exceeds \$25,000; and this figure does not include the amounts spent on prison bonds.⁵

Crime also impacts negatively on other aspects of urban life: health care costs, children in poverty, even air quality and mobility as people move away from urban areas perceived as too dangerous. Therefore, the question to consider is how much the region is willing to invest now to avoid paying more later. Young people who become involved in criminal activities are more likely to grow up to become chronic criminal offenders.

According to the RAND Corporation, California ranks among the most punitive states in the treatment of high-risk youth. RAND notes that, with 11 percent of the U.S. population, California accounts for more than 20 percent of the juveniles incarcerated in the entire nation.⁶

Prevention strategies must be broad and encompass a wide range of programs -- from improving prenatal health care and early childhood education, to teaching parents techniques for dealing with problem behavior of their children, to youth employment opportunities. Programs which deal with high-risk youth should include family intervention. Research has indicated that young offenders are especially likely to have early involvement in high-risk behaviors (such as delinquency, substance abuse, and sex) and academic problems in school and to come from families with histories of dysfunctional behavior and lacking adequate parental supervision and discipline.

Although prevention efforts are praised by both the private and public sectors, funding for these programs has been unreliable and budgetary problems threaten to dismantle some existing projects. With violent crime rising while the resources available for law enforcement are limited, policy makers must pay closer attention to efforts to guide young people toward productive alternatives to gang and criminal behavior. Recreational, cultural, educational, and vocational programs must be considered as important as enforcement in dealing

⁵ See the Human Resources and Services Technical Document for crime data.

⁶ *Urban America: Policy Choices for Los Angeles and the Nation*, Rand, 1992, Santa Monica, Ca.

with juvenile problems. The most effective programs will be those that involve the various segments of the community in the design and delivery stages, including local service providers, the business and non-profit sectors, schools, parents, and youth.

RECOMMENDATIONS

- Preventive efforts should begin with improved early childhood care.
- Programs should do the following:
 - Help families learn techniques in problem solving and teach parents how to deal with problem behavior of their children.
 - Actively engage children in community services at an early age.
 - Aim to prevent high-risk behavior, focusing on teaching children resistance skills and the motivation to use those skills.
 - Build positive links between youth, their community, and the educational system.
 - Organize youth groups to deal with the issues and problems facing them.
 - Prepare youth to participate successfully in the labor market.
- Develop recreational and open space facilities so that more opportunities can be created for young people.
- Funding for cooperative regional and subregional programs to prevent and reduce crime should receive high priority.⁷

F. INVESTMENT STRATEGIES FOR COMMUNITIES IN NEED

Through community-wide efforts in cities throughout the nation, partnerships are being created among government agencies, nonprofit service organizations, the business community, and volunteers from universities and religious institutions for the purpose of "rebuilding communities." The Atlanta Project in Georgia and the Austin Project in Texas are examples of efforts to address the problems that afflict economically depressed families—school-age pregnancy and dropout rates, low-weight births, developmentally delayed children, juvenile delinquency, crime and violence, homelessness, drug abuse, and unemployment.

⁷ Subregional input: Southeast Los Angeles County.

Local governments in Southern California are also attempting to address the economic and social challenges which have resulted from income and demographic changes. Using a set of strategic indicators (unemployment, poverty, lack of high school diploma, and lack of English proficiency), a SCAG study has identified communities in the region that are particularly in need to help the public, private, and non-profit sectors develop programs to meet the needs of residents in those communities.⁸

How can we transfer economically depressed communities into dynamic, successful and healthy entities with a skilled workforce? Three major goals are proposed to guide our future action:

- Provide opportunities for individuals and families to achieve economic self sufficiency.
- Equip children and youth with skills that will enable them to achieve their potential and contribute fully to the community.
- Strengthen the links in the networks of organizations providing human services -- public, private, and non-profit.

GOAL I - Provide opportunities for individuals and families to achieve economic self-sufficiency.

The projected increase of approximately 6 million residents in the SCAG region between now and the year 2010 means local governments face the challenge of providing services for more than 20 million people. As a region, we are faced with a number of serious issues. How do we protect our environment and accommodate the expected growth? How do we keep our economy healthy and meet air quality goals? How do we provide adequate and affordable housing to present and future residents and protect and enhance our open space? How do we ensure that individuals successfully meet economic and social challenges?

RECOMMENDATIONS

- Coordinate resources to provide more subsidized child care in disadvantaged communities.
- Develop and promote programs that allow children from disadvantaged communities to have access to the educational, recreational, cultural, and economic opportunities of the region.
- Expand programs that enable the disadvantaged populations to compete successfully in the labor market.
- Establish one-stop service centers in disadvantaged communities for job information, training, and support services.

⁸ The Human Resources and Services Technical Background Document includes data by county on "communities in need."

- Increase affordable housing options for low and moderate income persons in disadvantaged communities, including licensed affordable group homes and assisted living residences for the elderly.

GOAL II - Equip children and youth with skills that will enable them to achieve their potential and contribute fully to the community.

The Growth Management chapter of the RCP estimates 75 percent of the population growth during the next two decades will be due to children born since 1990. Many of these youths will not achieve their potential due to dropping out of school, teen pregnancy, and delinquent behavior. Prevention investments will allow at-risk youth to have alternative options to becoming the next generation of homeless, criminal offenders, and adults requiring public assistance.

RECOMMENDATIONS

- Promote mentoring programs and positive role modeling for children and youth at-risk.
- Support involvement of young people in disadvantaged communities through leadership programs in each community.
- Expand educational, cultural, and recreational programs in disadvantaged communities.
- Through cooperative arrangements between the public, private, and non-profit sectors, provide youth in disadvantaged communities with practical work experience in vocational, technical, and professional skills for existing and new occupations.

GOAL III - Strengthen the links in the networks of organizations providing human services – public, private, and non-profit.

A fragmented human services system has not been able to provide easy access to the broad array of services and support mechanisms needed by the region's children to treat and, more importantly, to prevent their problems. Most services are designed to address problems that have already occurred rather than to offer the necessary supports to prevent difficulties from developing. With limited resources available to support human services programs, there must be increased coordination and collaboration between local institutions and public and private agencies serving families and children to use available dollars to better advantage.

RECOMMENDATIONS

- Establish a regular system for reporting on the region's state of human service needs, programs, plans, and activities.

- Establish a cooperative human services strategic planning process involving private and non-profit service providers, community representatives, business groups, and government officials.
- Develop methods for assessing residents' satisfaction with the quality of services and effective feedback mechanism to ensure that concerns with services quality are promptly and properly addressed.
- Establish permanent regional and local forums for public and private groups to meet and discuss current and emerging human services issues, problems, and solutions.
- Establish specific, focused performance measures for human service programs in disadvantaged communities and conduct regular evaluations of their cost effectiveness.

The National Civic League identified various communities throughout the nation which have been successful at developing techniques to improve the quality of life of their residents. All of these communities have recognized the interdependence among residents and the various sectors and have identified common goals to meet individual and community needs and aspirations. The League developed a theoretical framework for communities to deal with the complex challenges they face. A Civic Index provides a method to identify strengths and weaknesses and to structure collaborative approaches to solving shared problems. This Index includes the following components: citizen participation; community leadership; government performance; volunteerism and philanthropy; intergroup relations; civic education; community information sharing; capacity for cooperation and consensus building; community vision and pride; and inter-community cooperation.

In its approach to improving community life, the League recognizes that all communities must develop new strategies and tools to get all members of the community to agree on a plan and then work together to achieve it. As the League points out, successful communities realize that no group succeeds unless the diverse needs of the entire community are met.⁹

G. CONCLUSION

Three of the major problems facing Southern California are a declining quality of the workforce due to weaknesses in the educational system, an exodus of companies from the region, and growing unrest and despair among minorities in economically depressed communities. And despair leads to crime and other destructive behavior. The choice is not whether to invest in the region's people, but how. The most effective solutions will be community-based. Solutions are going to spring from the experience, creativity and resources of the community—not edicts from public agencies. The local level is closer to the problems, closer to the people, and closer to the solutions. The way to address the problems facing the region's

⁹ *The Civic Index*, The National Civic League, Inc., 1993.

The National Civic League also offers a variety of programs designed to improve the quality of life and meet the specific health needs of communities. The World Health Organization defines a Healthy Community as one that includes a clean, safe, high-quality physical environment and a sustainable ecosystem; provision of basic needs; an optimum level of appropriate, high-quality, accessible public health and sick-care services; and a diverse, vital and innovative economy.

communities is to build effective partnerships among government, academia, labor, community groups, and the private sector.

Neighborhoods throughout the region are increasingly experiencing rampant use of drugs, gangs, crime, and other social ills. By organizing around the issues important to residents, neighborhoods can create more stable communities that offer hope, opportunity, and needed services. Citizen participation gives residents a stake in the community, and this involvement is vital to a successful program. Through this process, citizens can become involved in planning their future and the future of their community, rather than being merely powerless recipients of programs from some detached bureaucratic source.

The goal of community development is to empower communities to seize control of their future. Successful community development groups enable residents to set their own priorities and shape the process of community renewal. Locally-originated change generates positive consequences that go beyond visible improvements, including the development of indigenous leadership, the stimulation of increased outside investment, and the forging of productive alliances among residents, local government and the business and philanthropic communities. Governments at all levels face a future constrained by tight budgets and widespread public skepticism whether social programs can work. To ensure that programs do not become too costly, the community has to work with the public and private sectors to maximize scarce resources.

Business leaders often attack the state's regulations and worker's compensation system, which are in need of reform, for our economic woes. However, an economic strategy that denies the need for environmental or basic social protection is not appropriate for the region. Companies that insist on massive rollbacks of their tax or regulatory obligations to remain in California are unlikely to form long-term commitments to the state. Excessively rolling back environmental or other social programs is bad for business, as companies and individuals choose not to locate in certain areas due to concerns about environmental or social conditions. Maintaining quality of life standards is essential for the region's business climate.

All communities must have the capacity to provide for themselves and become self sustaining. Some communities need assistance to develop their institutional infrastructure and an expanded economic base to achieve these goals. The Economy chapter addresses the implications to the region of lack of action and recommends strategies for regional economic prosperity, including specific strategies for long-term investment in communities in need.

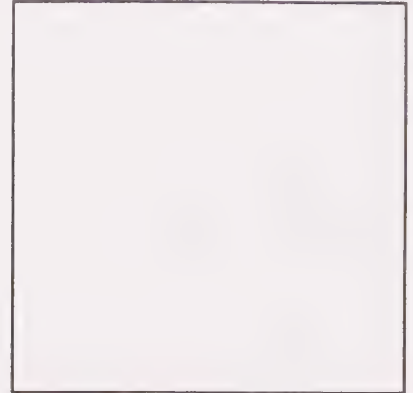
There must be a greater degree of interagency cooperation in the development and implementation of services for diverse populations at community and regional level and partnerships between public and private agencies so that scarce resources can be more effectively targeted to address all issues of concern in the region. Education, affordable housing and skills development and job training for economic opportunity address the root causes of poverty and violence in the region. It is necessary to look beyond the symptoms and identify the causes of problems in order to solve them.

H. ISSUES FOR FURTHER DISCUSSION

- How do we develop adequate funding sources to address the gaps in services provided by public, private, and nonprofit agencies?

- As there are clear restrictions on the amount of money available for human services programs, how can existing funds be used more effectively, efficiently, and fairly?
- How can effective program coordination mechanisms be developed throughout the region to integrate the efforts of all components of the services delivery system?
- What other issues, such as health, do we need to address regionally?
- How can we create a forum within subregions to address human resources and services issues?
How do we develop relationships between subregions on a regional level?
- How can SCAG's database and other resources be used to help those involved in Human Resources and Services in the region? What should be SCAG's function and role?

Chapter 8



FINANCE

- Introduction
- Goals
- Strategies

(The presentation below is a summary of issues to be covered in the proposed chapter on finance. Due to the time it took to develop the direction for this component, it is not included here, but will be released later. The outline is given below.)

A. INTRODUCTION

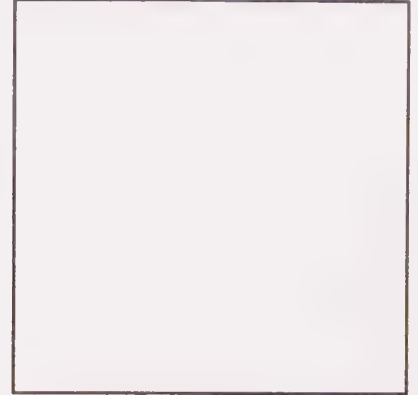
The SCAG region is a formidable fiscal entity. In FY 1990-91, local governments in the State raised more revenues than the State itself, and Southern California accounted for about --- of that total. The finance component of the RCP will, for the first time, describe in a comprehensive manner the status of the region's public finances, including city, county, school and college district, special district, transportation agency and private contributions to infrastructure. It will also summarize the changes in public finance in the region during the past 10 years, and examine the changes in trends with respect to a series of measures of the fiscal health of the region.

B. REGIONAL FINANCIAL GOALS

The finance component will identify a set of financial goals for the region which will flow from and support the overall goals of the RCP. Governments in the region provide essential services for their residents. The ability to maintain adequate service levels and to plan for the future depends on the ability of these governments to raise the necessary revenues in a predictable and responsible manner. The current economic recession and the budgetary problems of the State have severely challenged the ability of all governments in the region. These governments have struggled to raise additional revenues through user charges, fees and exactions on development, and strategies to promote land uses which provide the greatest promise of generating additional sales tax revenues. This "fiscalization" of land use directly challenges the effort of the RCP to plan physical growth in a rational manner while taking into account federal and state requirements to improve the environment, particularly air quality.

C. STRATEGIES

Like other components of the RCP, the Finance component will outline a series of strategies which will allow the region to meet its public finance goals. These may include informational strategies, which recommend the creation and/or distribution of information about the region's anticipated financial condition, and operational policies which provide a basis for prudent and responsible fiscal decision-making. In turn, the operational policies may include recommendations for incremental changes in existing financial policies and patterns to address current problems; for fundamental changes in the current regional finance systems; and for major reforms which over an extended period of time might lead to new patterns of revenue raising and/or expenditure.



OPEN SPACE AND CONSERVATION

- Introduction
- Open Space Attributes
- Goals and Intent
- Methodology, Mapping and Approach
- Background
- Issues, Goals and Strategies

A. INTRODUCTION

The population of the SCAG region is expected to increase from its 1993 base of 15 million to 20.5 million in 2010, 22.1 million in 2015 and 23.7 million in 2020. The development needs associated with the additional growth, particularly for housing, economic activities, and facilities, will consume a significant portion of the remaining vacant land in the region. Some of the lands planned for urban development are currently devoted to agriculture, mining, outdoor recreation, and other open space uses. Some are critical linkages between habitats and are essential for the continued viability of some ecosystems in the region. The Open Space and Conservation chapter is intended to educate the public on the contribution of open space resources to the quality of life of the region's residents, and to help local governments in this planning in such a way as to provide for both the region's need for-housing, jobs and open space resources. The chapter identifies opportunities and constraints for future development and provides a framework for conflict resolution when development needs are incongruent with resource protection, production, outdoor recreation, and other open space needs. This chapter includes the following:

- An inventory of regionally significant open space resources and an assessment of their continued viability in view of the potential impacts of future growth and development.

- A framework for addressing potential issues between development and open space needs.
- Strategies for better coordination of open space and land-use planning.
- An assessment of potential institutional and funding options for the planning, acquisition and management of open space resources.

B. OPEN SPACE ATTRIBUTES

This chapter focuses on four major types of open space—areas set aside for **outdoor recreation, public safety, resource production, and resource protection**. The cumulative result of the four types may provide a system of greenbelt around and within communities or subregions. The goals and strategies contained in this chapter are focused on the four types of open space defined below.

1. **Outdoor Recreation:** These include areas of outstanding scenic, historic, and cultural value; areas suited for outdoor recreation activities, including lake shores, beaches, rivers, and streams; and areas serving as links between major recreation and preservation areas, including utility easements, trails, and scenic highway corridors. The region is surrounded by the national forests, the Mojave and Sonora deserts to the north and the Pacific Ocean to the south. Land areas in this category currently fall under the jurisdictional control of many public and private agencies. This chapter emphasizes the need for coordinated allocation of resources for maximum effectiveness.
2. **Public Health and Safety:** These are areas requiring special management or regulation because of hazardous or special conditions such as earthquake fault zones, areas with unstable soil, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs, areas under air spaces used by civilian and military aircraft, and areas required for the protection and enhancement of air quality. The chapter identifies these areas, and emphasizes the need for regional policies for the protection of people and property consistent with existing state law. The long-term cost of extending infrastructure facilities to these areas and the cost of providing adequate safety to lives and properties should guide the decision to allow development in these areas.
3. **Resource Production:** These are areas designated for the production of crops, fisheries, timber, and mineral resources; and sites and corridors for the production and transmission of energy and utilities. Land resources in this category are most vulnerable to urban development. The cost of water, encroachment of urban development, and current tax laws, (Williamson Act), are some of the factors influencing the conversion of resource production lands, including agricultural lands, to urban development. The chapter contains strategies for long-term management of resource production lands.
4. **Resource Protection:** These are areas set aside for the protection and management of natural habitats for species identified as rare, threatened, or endangered (or could become so). Such areas offer valuable research and educational opportunities for improved management expertise and human understanding. Much of Southern California's biological diversity has been lost during the past several decades. Future development necessitated by the predicted growth in the region will place demands on the remaining resources. As currently implemented, the state and federal Endangered Species Acts regarding the listing of rare, threatened or endangered species, create uncertainty and contention for developers, environmentalists and governments. This chapter provides the framework

to balance the development needs of the region with the needs to protect and preserve designated species and their habitats.

The cumulative result of the four types of open space described above may result in a regional greenbelt system if planning efforts are coordinated. Greenbelts are areas set aside to define and separate the different subregions or communities in Southern California, and to provide psychological relief. The region's national parks and forests act as a regional greenbelt, but such definition is absent at the subregional and local levels. Many communities in the region currently implement greenbelt policies but no regional policies exist for the coordination and integration of these areas to form a coherent open space link. The chapter identifies opportunities for such coordination.

C. GOALS

In order to support the overall goals, particularly the goals of enhancing the quality of life for the region's residents and providing fair and equitable access, the following open space goals are described:

- Provide adequate land resources to meet the outdoor recreation needs of the present and future residents in the region and to promote tourism in the region.
 - Provide easy accessibility to open space lands for outdoor recreation.
 - Promote self-sustaining regional recreation resources and facilities.
- Maintain open space for adequate protection to lives and properties against natural and man-made hazards:
 - Minimize developments in hillsides, canyons, areas susceptible to flooding, wildfire and other known hazards, and areas with limited access for emergency equipments.
 - Minimize public expenditure for infrastructure and facilities to support urban type uses in areas where public health and safety could not be guaranteed.
- Maintain adequate viable resource production lands, particularly lands devoted to commercial agriculture and mining operations.
- Develop well-managed viable ecosystems or known habitats of rare, threatened and endangered species, including wetlands.

The goals emphasize the contribution of open space resources to the economy of the region, the quality of its environment, and the safety and security of its residents. The relationship of the Open Space and Conservation chapter to the other chapters of the RCP are discussed below:

1. RELATIONSHIP TO THE GROWTH MANAGEMENT, HOUSING, AND THE ECONOMY

The potential impacts of housing and economic development activities necessitated by future growth on the region's ecosystems, including its open space resources emphasize the need for the Open Space and Conservation chapter. Decisions regarding the location of housing and other economic activities, and the siting of needed facilities should be made with the understanding of their potential impacts on open space resources. The current practice of planning for individual species has proved expensive and time consuming for land owners and developers, and is often cited as one of the reasons for the higher cost for housing and other economic activities in the region. The chapter recommends multiple habitat planning; better cooperation between land owners and local agencies responsible for land-use development decisions; better coordination among the agencies with land management responsibilities and between the subregions; and, equitable funding sources for resource preservation and management with the goal of minimizing the negative effects of ecosystem management on economic development activities in the region. The outdoor recreation needs of the region will increase in direct relation to the region's predicted growth. With a larger proportion of the workforce in the professional category, the need for outdoor recreation uses will increase. The chapter underscores coordination of all land use planning and development activities.

2. RELATIONSHIP TO THE AIR, WATER, INTEGRATED WASTE, ENERGY, AND WATER QUALITY

These chapters have indirect impacts on the distribution of future growth and land-use/development activities in the region. They influence the region's urban form. In so doing, these chapters indirectly affect the extent to which future development will encroach on the region's ecosystem. The siting of water, waste water, and solid waste disposal facilities may have impacts on open space resources. These facilities should be developed in such a way as to minimize their negative impacts on open space uses, and allow for their subsequent conversion to some type of open space uses. When feasible, energy transmission corridors should be designed as links between habitats. This chapter promotes multiple-use of resources when economically feasible and practical.

3. RELATIONSHIP TO MOBILITY

Pursuant to Intermodal Surface Transportation Efficiency Act (ISTEA), the siting and routing of transportation facilities should avoid open space resources, including parklands, and wetlands. The potential impacts of transportation facilities on open space resources have to be examined in the environmental documentation for the transportation project, and appropriate mitigation measures have to be implemented to reduce impacts to levels on non-significance. Transportation facilities also influence the spatial arrangement of land uses—the location as well as the intensity of land development. Extension of new corridors into rural areas for example, can accelerate the rate of development in those areas. The policies in the Regional Mobility chapter have significant ramifications on the future of open space resources in the region; the chapter influences most land-use decisions, and therefore, the extent to which future development will impact open space resources. Potential encroachment of urban development and viable open space lands could be minimized by focusing transportation investment on areas where such potential negative impacts are minimal. This chapter will complement efforts underway between federal agencies, including Federal Highway Administration (FHWA) and the Corps of Engineers, and Metropolitan Planning Organizations (MPOs) to streamline 404 permit requirements for transportation projects. This Chapter includes mapped information on regionally significant open space areas in the region and this would form the basis for evaluating the potential

impacts of proposed transportation facilities on plant and animal life. Identification of potential encroachment of facilities included in the Regional Mobility Element at the system level will allow adequate time to redefine the scope, alignment or geometry of the facility. An MOU is being developed to expedite subsequent permitting requirements for transportation projects consistent with the Regional Transportation Plan (RTP) developed by MPOs. In SCAG's case, the RTP is the Mobility Element.

C. STRATEGIES FOR DEVELOPMENT

The Open Space and Conservation chapter focuses on regionally significant open space resources, including noted habitats of rare, threatened and endangered species. The open space attributes dealt with are consistent with those required for local general plans. This is to facilitate ease of use for subsequent planning and environmental analysis. The major categories covered are: outdoor recreation; public safety, resource production, and resource production. The degree to which future growth will encroach on these resources is determined by overlaying the planned spatial pattern of the region on areas currently perceived as open or vacant. Open space resources and habitats at risk are thus identified, and strategies to deal with potential future conflicts between development and open space needs are presented. The chapter focuses on market-based strategies rather than regulatory command and control requirements, which over the years have not proved to be as effective.

The chapter presents the most current information available from various sources, including federal, state, and local resources and land management agencies. Some of the information on vegetation was obtained from the "GAP" analysis program developed by University of California, Santa Barbara. Some of the pertinent information was converted to geographic information system, compatible with Arch Info format. Areas with information gaps can be addressed in future iterations of the plan.

The strategies can be grouped into three major categories:

- **Systemic approach:** focuses on the interrelationships between open space resources and peoples' quality of life. Understanding the potential effects of an action requires looking beyond local impacts, with an eye toward the relationship of a local resource to the larger regional needs. Local jurisdictions should plan their open space uses to complement those of adjacent jurisdictions. To achieve this objective and the goals identified above, the region should consider innovative institutional and organizational arrangements deemed more effective than the current parochial, regulatory approach. This chapter emphasizes the need to coordinate the planning and management responsibilities of the many agencies and entities involved with open space issues, and land-use planning and development in the region. Better information, planning and cooperation among jurisdictions will put resource information in the best light and framework for decision-making. The approach recommends ecosystem scale planning involving all areas and jurisdictions with common concerns as well as land owners, conservation agencies and interest groups. Resulting plans should be comprehensive and should include trade-offs between conservation and development, acquisition measures and protocols for project processing and mitigation. This approach will, in the long-term, streamline project review process and reduce costs associated with such reviews including environmental mitigation costs. It also provides all interests with greater predictability for land-uses, and improved methodology to assess the cumulative impacts of proposed projects.
- **Market-based approach:** This approach focuses on methodology to assess the true value of open space resources and the cost of land development. This information will help guide decisions to convert a vacant land to other uses. Criteria will be developed to determine the viability of the

ecosystems in the region and the suitability of a site for urban development. Information presented to make this decision should include the following:

- Known economic benefits (of the land resource, undeveloped and developed).
- Implied economic benefits (of the resource and the proposed project).
- Public cost to provide facilities and services to the site if developed, and to provide special relief if in hazard-prone areas.
- Planning, environmental mitigation, and legal costs.
- Other miscellaneous costs.

This approach emphasizes the need to assess the sum-total of all costs associated with a project and it to the net economic and implied benefits of the project upon completion, to determine the reasonableness of the proposed project. The cost-benefit analysis approach will allow for informed and cost effective land use decisions. The approach notes the following:

- Certain resource production lands are best left undeveloped; agricultural, mineral, recreation, tourism enhancing, and other productive and economic lands may be more economically valuable left in open space.
 - The public cost to provide services and/or relief to hazard prone areas and the potential threat to lives and properties in these areas may make development in these areas unacceptable public risk. Such areas may be best left undeveloped.
 - Certain sensitive habitats and linkages should be left undeveloped to avoid major mitigation costs, special studies, long environmental processes, recovery planning for listed species, and litigation.
 - The social and psychological benefits of open space resources are often ignored when making land use decisions. Factoring these benefits into land use discussions will lead to better-informed decisions.
 - Investments in infrastructure will be focused in such a way as to limit encroachment of urban development on open space resources.
 - Multiple use of open space resources and other land uses is beneficial in limiting the rate of land consumption.
 - Proactive planning for open space resources will reduce development costs and unnecessary delays to project development.
- **Public Funding/Private Incentives:** To achieve the goals identified in the chapter, funding for the acquisition and management of open space resources has to be identified. Developers, land owners and new residents have traditionally borne a greater burden of the cost to acquire open space resources. For effective implementation, the public sector may have to accept a larger role. The chapter identifies feasible funding strategies and other incentives that could be employed to achieve the region's desired objectives. Some of the funding sources available for open space planning, acquisition and management are listed below:

- Federal sources—Land and Water Conservation Fund (LWCF), Wetlands Reserve Program, Conservation Reserve Program, Farmers Home Administration Conservation Easements, grants, land exchanges. (Of the \$900 million authorized for LWCF each year, only about \$200 million is actually spent, most going for federal acquisitions. Many agencies from throughout the country compete for these funds, but the cumulative total of all the unspent authorized fund could sustain the land acquisition needs of the nation for several years. LWCF may not be a stable source of funds for planning, management, and monitoring.)
- State sources—The California Wildlife, Coastal, and Park Land Conservation Act of 1988; California Wildlife Protection Act of 1990; Environmental License Plate Fund Grants; California Environmental Enhancement and Mitigation Program.
- Local Sources, including mitigation fees, open space districts and assessments.

Other potential sources:

- Federal—Real Estate Transfer Tax. Step up current small scale exchanges within federal units to include massive desert-coastal land exchange program. This would see lower value current open space federal lands traded for higher value current open space private lands and bring a federal resource management presence into the coastal area.
- State—Documentary, real estate taxes, lottery proceeds, bond initiatives, oil and gas revenues.
- Regional/Local—assessment district(s), transfer of development rights, donations, purchase by conservancies, user fees (utilities, highways, landfills, recreation sites), real estate transfer, facility-use fees, acquisition of tax-delinquent parcels, exchanges, access to LWCF (This federal program supports federal, state, and local governments in acquisitions for recreation and habitat protection. Most LCWF allocations have been to federal agencies.)
- Government-offered incentives for landowners keeping land in open space. Some of the programs currently exist, but may have to be revised and refined to be more effective. For example, Williamson Act provides some protection for open space and agriculture lands, but as currently implemented, the act does not ensure long-term protection of those resources. Other programs and laws that could be refocussed include the following:
 - Transfer of Development Rights (TDR)
 - Water pricing/allocation policy.
 - Private party participation in open space programs, either for tax advantage or profit.
 - Laws and guidelines for Conservancies, Land Trusts, etc.
 - Short-term and long term tax reduction/writedown policy.
 - Land banking policy.

E. BACKGROUND

The population of the Southern California region is expected to increase by more than 5 million between 1994 to 2010. The predicted growth is greater than the current population of Orange, San Bernardino, Riverside, and Ventura counties combined. If current development trend is assumed, the physical size of the developed portion of the region will be 33 percent larger than its current size. Urban-type land uses and facilities

needed for the additional growth will consume a large proportion of the remaining privately held lands in the region. Some of these lands are currently devoted to uses like mining and agriculture, both of which contribute significantly to the region's gross domestic product and local tax base, and some are used for outdoor recreation. (Mining and agriculture generated \$2.5 billion [1991] and \$2.8 billion [1992] respectively.) Some are critical linkages essential for the survival of certain species or ecosystems in the region. The region added approximately 3 million people during the past decade necessitating the construction of 870,000 housing units (87,000 per year). These new residential units and the supporting economic and employment activities were developed in areas previously "perceived" as open space resources. The trend to convert vacant lands to urban development is expected to continue through 2010 and beyond. Indiscriminate conversion of lands to urban development may lead to the destruction of some of the critical ecosystems and sensitive habitats in the region. Both the federal and state governments will likely impose more stringent resource protection and conservation requirements on the region, if development activities threaten the viability of any species or their habitats. Developers and land owners determine the rate of development. This chapter is intended to be a framework to guide the location of future growth and the developments required to accommodate that growth in such a way as to lessen the detrimental impacts of the growth on the region and its land resources.

California's flora and fauna are unique in the world. The state contains 25 percent of all the plant species of North America; 30 percent (1,758) of the plant species are endemic (i.e., are found nowhere else). Southern California in turn contains 50 percent of California's habitat types, has 50 percent of the 108 California listed threatened and endangered species, and 320 species of plants and animals that are candidates for listing. The combination of uniqueness and threat makes California one of the 18 ecological "hot spots" of the world, the only one that is in the United States.

The prevailing requirements for resource conservation and protection imposed on the region by both the federal and state governments have often been cited as one of the reasons for the higher cost of housing and business in the region. Both levels of governments maintain listings of rare, threatened, and endangered species, and require implementing agencies, including local governments to develop policies for their protection. The federal listing for the region currently includes 46 species of plants and animals, including the California Gnatcatcher, Desert Tortoise, and Stephen's Kangaroo Rat. Until recently, affected jurisdictions and land management agencies developed plans for the protection of individual species on either the federal or state registers. During the past decade for example, plans were developed for the Desert Tortoise, Big-horn Sheep, Kangaroo Rat, and, recently, the Gnatcatcher and the Coastal Wren. In recent years, attention has shifted from planning for individual species to multi-habitats and ecosystems. Planning for individual species has not proved as effective in protecting the listed species, and the implementation of the resources protection policies is perceived by land owners and developers as one of the reasons for the high cost of housing and doing business in the region. These groups equate resources protection policies to project delays and expensive mitigation measures—higher costs for housing and doing business.

For better and effective approach to resource management, the state recently initiated a statewide strategy to conserve biodiversity. The State Resources Agency initiated the creation of the State Biodiversity Executive Council in 1991. SCAG represents the Southern California region on this Council. The Biodiversity Executive Council is expected to develop a framework for ecosystem planning, a shift from the current focus on individual species. Current efforts on Natural Communities Conservation Plans (NCCP) and the multi-habitat planning underway in some parts of the region are an outgrowth of the Biodiversity Initiative. NCCPs may ultimately be developed for all the ecosystems present in all three SCAG's bioregions: (the South West, covering the land area between the mountain ridge and the Pacific Ocean; the Mojave Desert, covering the northern desert portion of the region; and the Sonora Desert, covering the southern desert. The Open Space and Conservation chapter focuses attention on the following: an effective transition from species-focused to

ecosystem-focused policy strategies; better coordination among various agencies with land management responsibility; a balance between development needs and the needs to protect valuable resources and ecosystems; better coordination with prevailing land use law; and, a more stable and equitable funding system for resource management. This is consistent with the focus of NCCPs.

California Government Code § 65302 et seq. requires a local jurisdiction's general plan include policies for the preservation and protection of open space and agricultural lands, and the conservation of essential natural resources. Each city in the SCAG region is required to maintain a current general plan with seven mandatory elements, including land use, housing, transportation, open space and conservation. The law accords the open space and conservation elements equal status with the other five elements (*see* the California Court of Appeal in *Sierra Club v. Kern County* (1981) 126 Cal.App.3d 698, where the judge voided a precedence clause that gave a land-use element priority over an open space element on the grounds it violated Government Code Section 65300.5 requiring elements of a general plan carry equal status and be internally consistent). The Open Space and Conservation chapter provides the framework for coordinating multiple-habitat plans such as NCCPs with local general plans.

In 1977, SCAG published a regional Conservation and Open Space Plan. This plan addressed the issues facing the region in terms of conservation of natural resources and preservation of open space areas and sensitive ecological areas. The lack of coordination among the various agencies with land management responsibilities in the region limited the effectiveness of the plan. These agencies have to respond to variable and often conflicting mandates. Although the plan has not been revised since its adoption, open space issues continue to be addressed in local general plans and in the plans prepared by Federal Department of the Interior and Agriculture, the State Department of Resources, and many private companies with large land holdings in the region. Examples of plans and initiatives currently underway or recently completed in the SCAG region include the following:

Western Riverside County — Nearly the entire western portion of the County is under conservation planning, initially for the Stephen's Kangaroo Rat. The study has been expanded to the Gnatcatcher and is evolving into a multiple species program. \$30,000,000 has been raised for habitat acquisition through development impact fees of \$2,000 per acre. This planning effort is to a large extent consistent with the goals of NCCP. Policies in the Riverside County plan are consistent with some of the strategies included in this chapter. The Western Riverside Council Of Governments (WRCOG) and the County of Riverside are involved in this effort.

Orange County—The County and private landowners have together enrolled about 80,000 acres of coastal sage scrub and other habitats into the NCCP program. This voluntary approach is perceived more effective and equitable by all interests. The Orange County effort is consistent with some of the strategies in this chapter.

State of California—The State Department of Fish and Game, in partnership the U.S. Fish & Wildlife Service, have been coordinating the development of NCCPs and multi-habitat plans across the state. These agencies work in partnership with local jurisdictions and major land owners in these efforts.

U.S. Bureau of Land Management—The U.S. Bureau of Land Management (BLM) is developing coordinated ecosystem management plans involving many jurisdictions and resource values on about 15 million acres in the California desert with the Desert Tortoise as focal point.

Most of the efforts underway are focussed exclusively on biodiversity. To be more effective and comprehensive, they should be expanded to consider the other open space attributes and explore the feasibility of multiple uses of some of the areas set aside for resource protection. This chapter is not intended to replace these efforts but to provide a framework for their coordination for maximum effectiveness.

1. JURISDICTIONAL CONTROL OF LAND IN THE REGION

Most of the land in Southern California (approximately 65 percent) is administered by agencies of the federal government, including the BLM, the U.S. Forest Service, the Department of Defense, and the Park Service (*see* Figure 9-1). Catellis and the railroad industry owns approximately 11 percent, leaving less than 25 percent in private ownership (*see* Figure 9-2). Most of the privately held lands in the coastal part of the region is already developed (*see* Figure 9-3). Growth projections indicate that nearly all of the remaining privately held lands in the coastal valleys will be developed (*see* Figure 9-4). Significant development pressures can also be expected in the outlying areas on lands currently "perceived" as open space. The additional growth will further strain the capacity of existing state and national parks and public campgrounds, which are already showing signs of overuse. In recent years many of the public campgrounds have not been able to accommodate the demand of potential users particularly during holidays. Simultaneous with urbanization pressures on private lands is increasing protection and preservation pressures on public lands—particularly the 15 million acres of desert and mountains that the BLM and the U.S. Forest Service manage. Political and environmental initiatives for more wilderness, parkland and habitat protection are foreclosing many traditional public land uses that will have to be accommodated somewhere else.

F. OPEN SPACE ISSUES, GOALS, AND STRATEGIES

This chapter focusses on four major types of open space resources—for outdoor recreation, for public safety, for production of agriculture and minerals, and for protection of ecosystem and biodiversity. The four categories are consistent with those required of local general plans. In each of the areas there are a set of strategies presented to address the goals defined above. The strategies are put in the context of several issues that have been identified for the four resource types.

1. OUTDOOR RECREATION, TRAILS AND CULTURAL RESOURCES

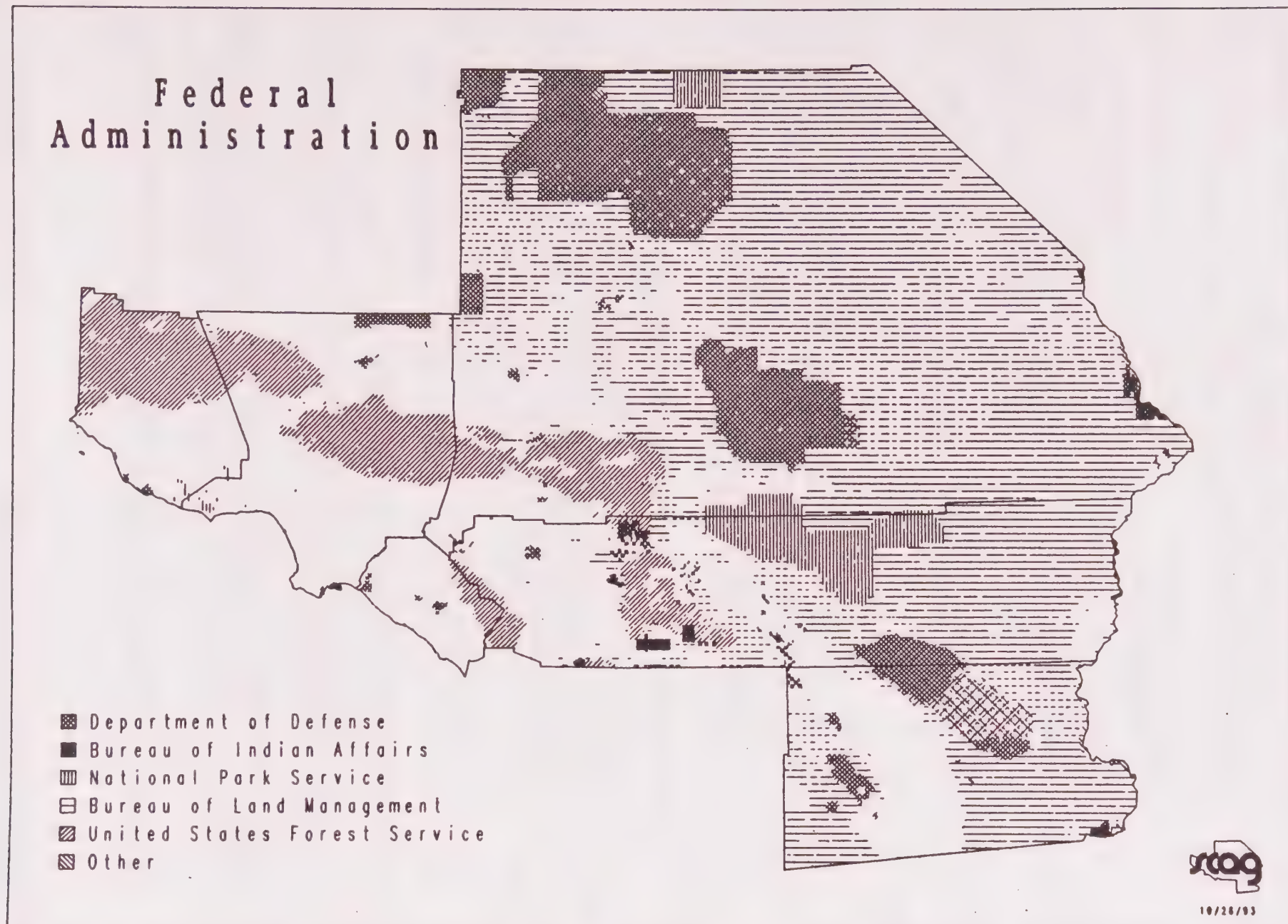
People need areas for outdoor recreation. Many people in the SCAG region do not have enough places and variety of opportunities or access to such places due to distance and poor public transportation. As the population grows, the deficit will increase. Not having such places and opportunities lowers the quality of life and invites societal ills. Presently, the deficit is greatest in the urban-core areas. To the extent that urban centers become more dense, the greater the demand will be for outdoor recreation areas that are easily accessible. The diversity of opportunity offered by landform and ocean, proximity of vast public lands, and favorable climate bless the SCAG region with fairly good resources and opportunities considering the size of the population. One of the biggest current shortages is in city neighborhood facilities.

A recent public opinion survey done for the State Department of Parks and Recreation indicates the following:

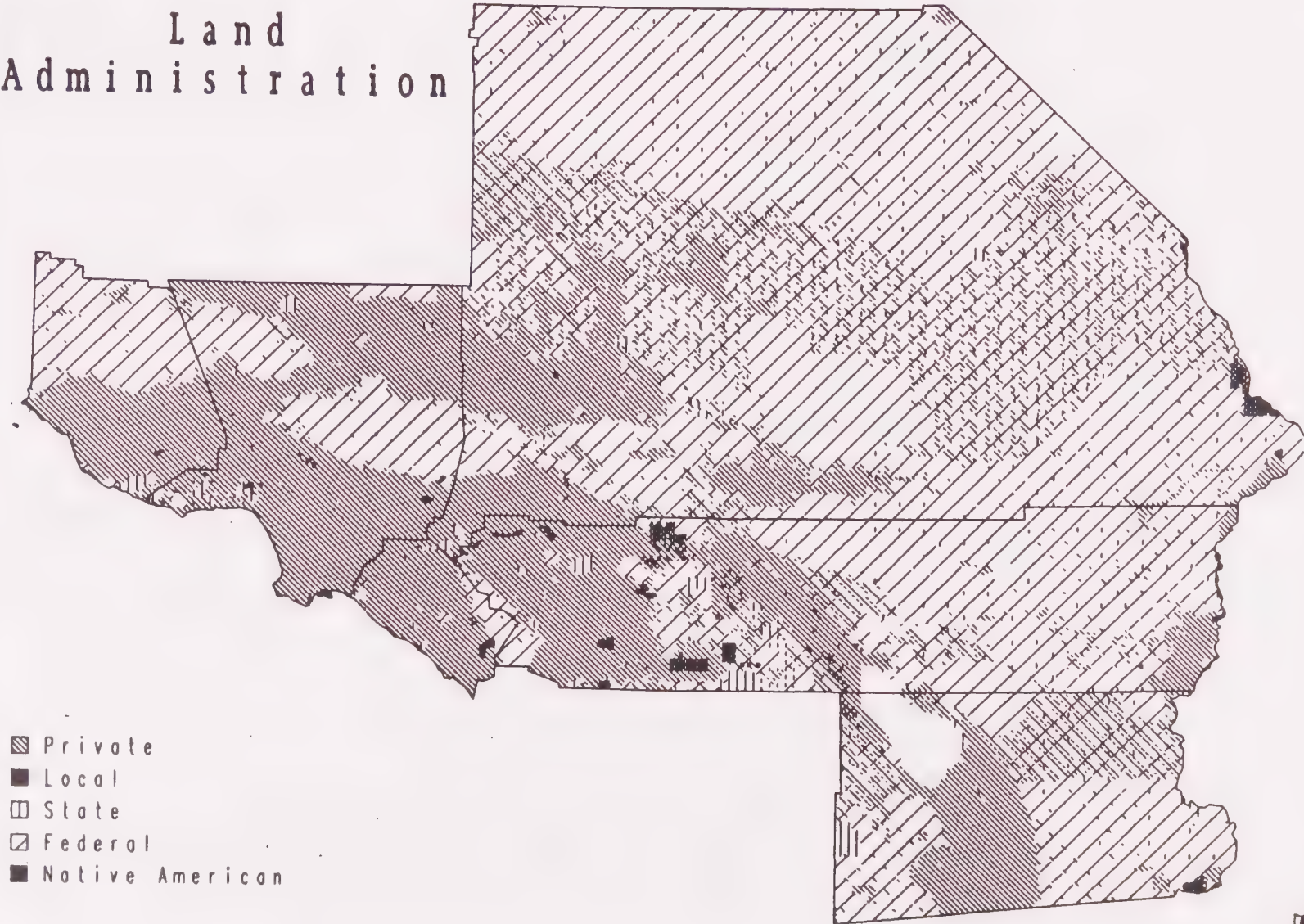
- Eighty-eight percent of Californians consider having adequate places and facilities for recreation as important to enhancing their quality of life.
- Eighty percent of Californians spend time in natural or undeveloped areas.
- Seventy percent of Californians expressed the need for more outdoor recreation areas and facilities in and near cities.
- Ninety-four percent of Californians felt it is important to protect important natural areas.
- Seventy-five percent of Californians recognized the contribution of open space resources to the economy and the potential growth in employment opportunities in tourist industry.
- Sixty-six percent of Californians felt having easy accesibility to recreation resouces and facilities enhances property values and neighborhood quality of life.

Issues:

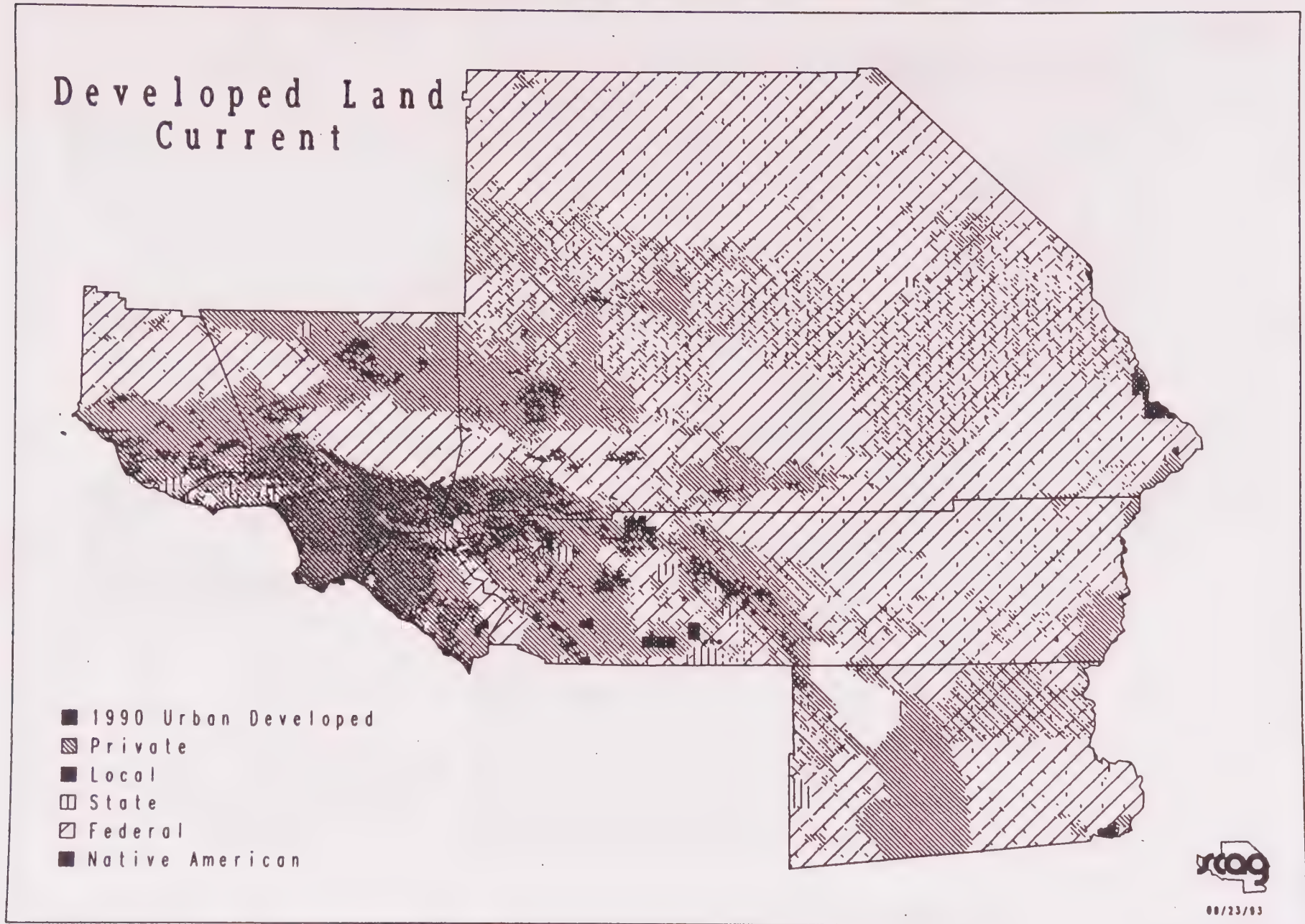
1. The urban SCAG region is quantitatively and qualitatively deficient in regional recreation and trail opportunities. The demand is unique for the number of people and wide array of ethnicities and other social characteristics. The gap between demand and provided opportunities will increase with increased population and become more difficult to close with future open space losses and environmental/political foreclosure of certain types of uses on public lands. continued shortfall may result in the depreciation of residents' quality of life.
2. An inadequate supply of opportunities, especially in the urban core, does the following:
 - More pressure on biodiversity areas from displaced, unmanaged uses.
 - More pressure upon outlying jurisdictions (where there is more open space) to provide more.
 - Inadequate investment in public transportation to the existing open space areas, thereby exacerbating reliance on private transportation.
 - The distance of the available resources limits accessibility of the poor.
3. No state or regional vision or standard exists to guide and assess the adequacy of recreation and trail programs of jurisdictions, individually and collectively, for both residents and tourists.
4. Existing sites are often filled to capacity creating management problems.
6. Special attention should continue to be focussed on historical and cultural sites (prehistoric and historic Native-American occupation and burial).
7. Current redevelopment efforts do not include outdoor recreation needs in the urban core as a priority development type. Redevelopment practices should be reevaluated to address outdoor recreation. This will become even more important as the region looks beyond the 2010 planning horizon.
8. Recreation trails programs of individual jurisdictions and utility companies and other holders of rights-of-way are not coordinated to provide regional trail opportunities.



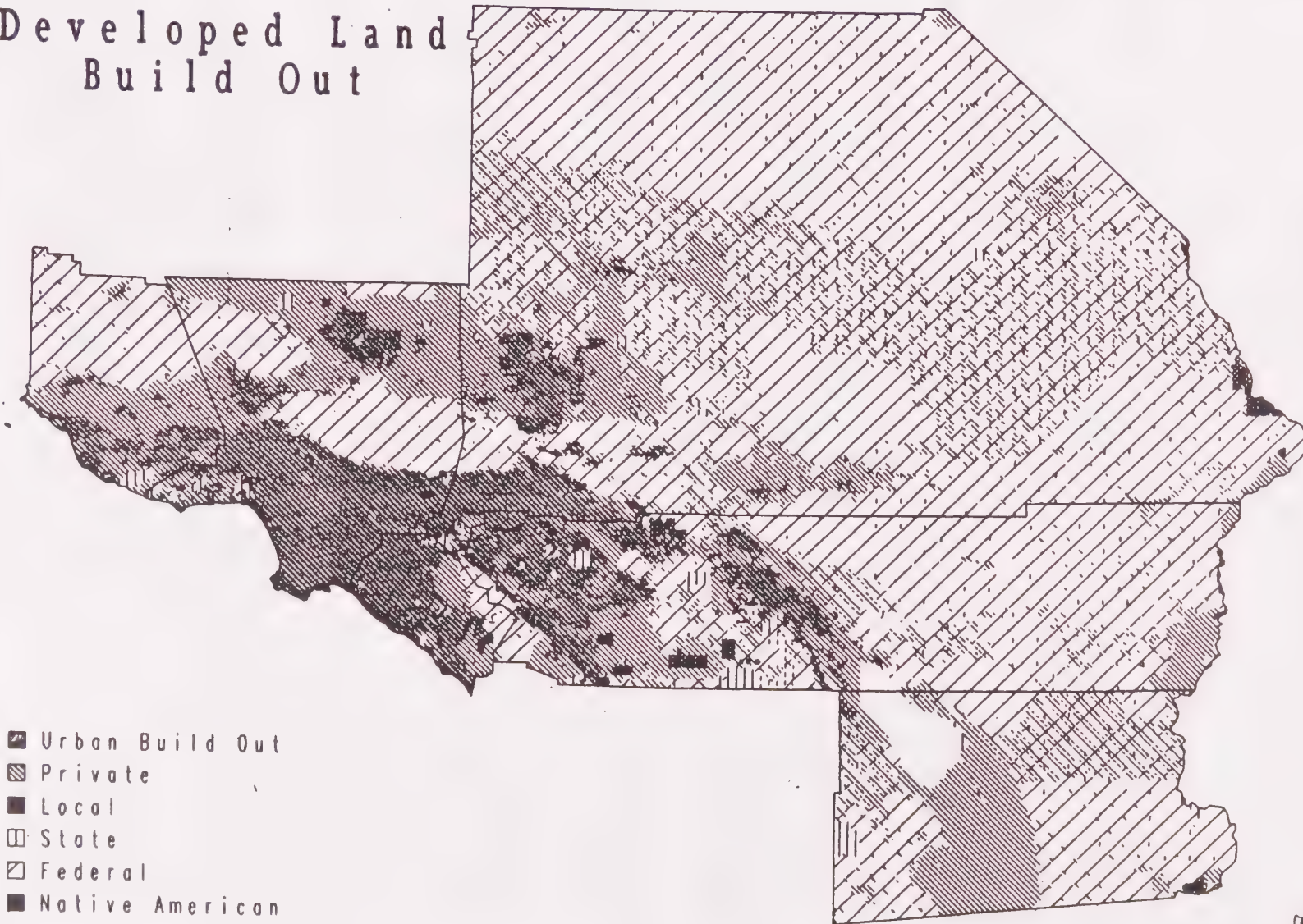
Land Administration



08/22/93



Developed Land Build Out



10/19/93

Goal: Provide adequate land resources to meet the outdoor recreation needs of present and future residents, and to promote tourism in the region.

- Easy accessibility to open space lands for outdoor recreation.
- Self-sustaining regional recreation resources and facilities.

Strategies:

1. SCAG through the subregions initiate a regionwide vision-setting process that would guide and coordinate individual Southern California jurisdictions and the private sector in their public recreation programs. A tie to ecosystem planning is necessary for both conflict identification and resolution and multiple use opportunities.
2. To provide more opportunities closer to urban cores, multiple use of spaces should be allowed as feasible and practical and redevelopment activities should focus some investment on recreation uses
3. Recreation facilities, both passive and active should be considered an important resource in youth development initiatives (*see* Chapter 7). Government and broader societal expenditure priorities should reflect this opportunity.
4. Transportation systems should be directed to regional recreation centers and major trailheads.
5. Jurisdictions covering areas that include trails and trail segments determined to be regional significant should amend their local plans to recognize and support regional trail networks. Joint use of utility, transportation and other rights-of-way, greenbelts and biodiversity areas should be considered and encouraged. The Mobility chapter of the plan should develop a trail program that links the recreational and open space resources in the region.
6. Southern California jurisdictions should work as partners to address regional outdoor recreation needs of the region and to acquire the necessary funding for the implementation of their plans and programs.
7. SCAG should establish a regional recreation council of local, subregional, state and federal jurisdictions for continuity in dialogue, pooling of expertise and information, and mutual aid in modeling, management and monitoring of sites, establishing continuity of contact with public needs and attitudes and other follow-through from strategy No. 1 above. This could be done under specific, separate agreements or affiliation of key state and federal jurisdictions with SCAG.
8. Applicable SCAG-region jurisdictions, including the Region's University systems, cooperatively work toward the following:
 - develop candidate cultural areas for protection and public education;
 - identify (with Native-Americans), areas important for local materials collection and other uses and held sacred. These areas should be considered on their own and in conjunction with other open space planning for retention as permanent open space.
9. SCAG initiate research to create stronger support for economic investment in recreation opportunities for tourism and to achieve social needs. Such information would be used to develop cost -benefit analyses in weighing how much open space land to dedicate to outdoor recreation

10. SCAG and the subregions research the complexity of funding opportunities (Section C above) for recreation planning, acquisition, management, and monitoring as well as incentives to private landowners for participation where possible to minimize the acquisition burden). Large amounts of capital will be needed in aggregate on a sustained basis to cover planning, implementation, and monitoring. The funding should be largely publicly provided. The strategy should include State and federal jurisdictions, especially for regional needs. Implement what can be done through local authorities and initiatives and work with state and federal jurisdictions and elected officials for the remainder. (This strategy is similar to that for Resource Protection).
11. The Regional Advisory Council should take the lead in encouraging all jurisdictions to promote privatization and volunteerism and other support for as many site needs as possible through interest groups, rehabilitation programs, schools, and businesses for one-time needs and long term "adoption" to help create a more understanding and caring public for public spaces.

2. SAFETY AND HAZARD AREAS

(See the *State of the Region Report* prepared for the RCP EIR for full discussion of Safety and Hazard Areas)

Southern California has many natural hazards to cope with.

- All low-elevation native vegetation is extremely flammable and even dependent upon fire for its ecological life cycles.
- The Los Angeles Basin has the highest potential for a large amount of rainfall in a short period of time as anywhere in the country. Foothills and steep, rock slopes bring enormous amounts of water into the floodplain.
- Coastal Southern California is geologically very young with significant seismic activity and unstable soils.

Most jurisdictions in the region have extensive inventory on hazards and hazard prone areas. Prevailing state laws seem to provide guidance on developing in hazard-prone areas. The reality is the following:

- Extensive development exists in hazard areas; sometimes catastrophes occur.
- The periods between big catastrophes are usually long enough that the memory fades; and more development gets permitted in hazard areas, thereby increasing the potential for more catastrophes.
- In spite of the human and fiscal tragedies that occur in hazard prone areas, permits to rebuild in these areas are often granted, without adequate assessment of the adequacy of the applicable development and building standards. Without adequate development and building standards, the potential remains for future catastrophic occurrences.
- The region has variable degrees of hazards, fire, flood, landslide, seismic, airport, etc., each requiring different types of planning.

Issue:

1. Areas with man-made and environmental safety implications have been developed, continue to be developed, or are encroached upon. Over the years, lives and properties have been lost, and billions of dollars have been expended building and rebuilding. As more hazardous areas are built and encroached upon, the tragedy frequency increases.

Goal: Adequate protection to lives and properties against natural and man-made hazards:

- Minimize developments in hillsides, canyons, areas susceptible to flooding, wildfire and other known hazards, and areas with limited access for emergency equipment.
- Minimize public expenditure for infrastructure and facilities to support urban type uses in areas where public health and safety could not be guaranteed.

Strategies:

1. SCAG and subregions develop a regional hazards inventory and risk rating system to be used in various urban, ecosystem, and recreation planning efforts.
2. SCAG collaborate with the U.S. Forest Service, California Division of Forestry and Fire Protection, and University of California at Berkeley for the development of fire models for natural, rural and urban-interface areas to aid in the development of land use planning, ecosystem management and urban development design criteria.
3. The true social and economic costs of building in hazard areas should be reflected in local land use planning and decisions; policies of local, state, and federal jurisdictions; and insurance company rate bases.
4. Landowners should be required to bear the cost of providing fund infrastructure and other services required in high risk hazard areas, including initial construction, maintenance, reconstruction, and rehabilitation costs.
5. SCAG through subregions develop criteria to guide local jurisdictions in acquisitions of private lands or the development rights to private lands if, in the long-run, the acquisition of an area is determined to be less expensive than converting the area to a more intense use. The criteria should help indicate when the public cost to support development in hazard-prone areas becomes unacceptable.

3. RESOURCE PRODUCTION

a. Agriculture

Farming was once the mainstay of the region's economy and still is quite important in Imperial, Riverside, San Bernardino, and Ventura counties. Agricultural production in 1992 was \$2.8 billion in the SCAG region and helps to keep the region's (and the state's and nation's) economy diverse and buffered from economic downturns in other sectors. Given the nature and amount of Prime, Statewide, and Unique soils and the area's climate, the SCAG region is one of the great agricultural areas of the world. Land left in farming is less demanding of infrastructure and services. The economy of the SCAG region is less healthy today with the loss of agriculture and increase in service costs than it once was. Retention of agriculture in different

regional centers is important to the country as more agricultural centers buffer the adverse effects of a seasonal regional agricultural catastrophes.

As valuable and important as they are for agriculture, these lands can sell for more money for urban development than for agricultural use, especially along the agricultural-urban interface. Aggravating the conversion trend are extensions and availability of infrastructure, lack of regional perspective of the true value of agriculture, weak or non-supporting regulations, the price and availability of water (50 percent of Southern California water goes into yards and gardens), and conflicts between urban and agricultural uses. As the population increases, demand for conversion will increase.

Retention of an agricultural industry is fairly strong in Ventura, Imperial and parts of Riverside Counties because it enjoys strong support in inventory, planning, regulation, jurisdictional leadership and, perhaps most importantly, public caring.

Issue:

1. Agricultural land has been and continues to be converted to urban development.
2. The agriculture-urban interface creates use compatibility problems.
3. The price of water makes agricultural uses prohibitive in some areas.

b. Minerals

The SCAG region contains significant mineral deposits. Many of its minerals are considered nationally strategic. Production in 1991 in the SCAG region was \$1 billion, 40 percent of the production of the entire state. Current and future environmental, urbanization and political initiatives apply and will continue to apply pressure on areas with significant mineral. The most significant current pressures are from urbanization in coastal sand and gravel areas and various preservation initiatives on federal public lands (*see figure 9-5*). The region is extremely rich in aggregates, but approximately 90 percent have been lost to existing development or are in river flood plains where environmental problems preclude their extraction.

Orange and Los Angeles are import Counties and most of the aggregates from all active coastal area quarries will be depleted in the next half dozen years. New materials will have to be unit trained from distant sites on the desert side of the San Gabriel and San Bernardino Mountains or from sources even more distant. When transported by truck, the cost of materials doubles for every 20 miles they are hauled. Except for alluvial deposits near the high coastal mountains the rest of the desert is poor or very limited in sand and gravel.

Issues:

1. Construction industry aggregates are becoming lost to urbanization in coastal Southern California
2. Mining—urban use interface creates visual, aesthetics and noise problems.
3. Mineral resources issues do not get adequate attention under current land use planning practices. The existing state laws for the protection of essential mineral resources may need to be strengthened.

Goal: Maintain adequate viable resource production lands, particularly devoted to commercial agriculture and mining operations.

Strategies:

1. SCAG and subregions develop relevant inventory and information on the location of minerals and soils suitable for agriculture, nature and value of agricultural and mineral production and their contribution to the region's economy. The information should be made available to local decision makers as guide to making land-use decisions.
2. SCAG lead the development of a strategic plan to address the aggregates industry. San Diego County should be invited to participate as there may be commonality in implications.
3. Jurisdictions include mineral resources into ecosystem planning.
4. Local governments should perform economic evaluations of their agricultural and mineral resources and support industries in their general planning in comparison with the values and costs of other land uses. Assessments should include contributions to local, state and national economies, and short-term/long-term implications of conversion of land use.
5. Local governments, state agencies, land owners and interest groups involved in agriculture, and water companies redesign water pricing/allocation policy so that water does not become an economic burden to farmers.
6. Develop incentives, education, and policies for private and public areas to encourage water conservation, thereby reducing water demand. (See Water Resources Chapter 6).
7. Local jurisdictions develop tax policy for areas that are to remain in open space for agriculture and minerals that is commensurate with the permanent uses.

4. RESOURCE PROTECTION

California's flora and fauna are unique in the world. The state contains 25 percent of all the plant species of North America; 30 percent (1,758) of the plant species are endemic (i.e., are found nowhere else). Southern California in turn contains 50 percent of California's habitat types, has 50 percent of the 108 California listed threatened and endangered species, and 320 species of plants and animals that are candidates for listing. The combination of uniqueness and threat makes California one of the 18 ecological "hot spots" of the world, the only one that is in the United States. The threats to habitats are direct loss, degradation from on-site and off-site actions, fragmentation (including loss of linkages), and fire suppression. Contributing causes are population increases, fragmented decision-making, conflicting mandates, and lack of public understanding and concern.

While basic concern is about species, planning and management attention for species protection is shifting across the country to the ecosystem (i.e., habitat) level. This approach is perceived to be more effective: it better handles the known and still poorly understood dynamics of all species in relationship with each other and their physical environment; it reduces or eliminates the need for piecemeal planning and streamlines project permitting process; and, it is more conducive to bringing all land use considerations and jurisdictions into the planning and management picture. Examples of ecosystem planning in California include:

Coordinated Resource Management Planning, multi-species planning, and Natural Communities Conservation Planning.

A determination has been made of ecosystems at risk of dysfunction using the combined knowledge of Southern California biologists to plot currently sensitive habitat/linkage areas and through the use of the California Gap Analysis being conducted by the University of California at Santa Barbara. The latter computer overlays plant community mapping with land ownership to evaluate the protective status of habitats and potential future loss and fragmentation. The potential for additional species to be listed increases in direct relation to the number of communities at risk. "Gap Analysis" has some limitations: it is coarse-scale and non-specific in the location of species, does not recognize management problems, cannot "see" micro-habitats, and cannot be used for project-scale planning. However, it is futuristic and very revealing at a regional scale given the trend of wholesale conversions of natural areas to development. Plant communities "at risk" are those with very high amounts of private land or very low amounts of dedicated protection land (and endemic) and are subject to habitat loss and fragmentation to the point that more species of plants and animals could become listed. Within the three ecoregions that comprise the SCAG area, the following Gap findings are provided:

Southwest Ecoregion (i.e. coast to mountain ridge)

- Eighteen mapped communities are at risk (out of 55 mappable).
- Thirty-two communities are so small or fragmented to a point where they could not be mapped. Most of them are at risk.
- Twenty-nine of 55 mapped communities are common to at least 10 percent coverage in both SCAG and San Diego County (*see* Figure 9-6 and Table 9-1 for additional information).

Sonora (i.e., southern or low desert) and Mojave (i.e., northern or high desert) are incompletely mapped at this time. Determinations to date indicate that between 10-to-20 communities in the area are at-risk. The amount of development in the Southwest Ecoregion places more of its plant communities at risk than those in the desert ecoregion. Chapter 3 of the RCP contains more information on the distribution of the plant communities in each ecoregion.

Issues:

1. Southern California ecosystems, mostly those on the lower elevations and gentle slopes of urbanizing areas, are shrinking, becoming fragmented, and not being managed to the point that many are in danger of serious dysfunction and hundreds of plant and animal species have become candidates for listing under endangered species acts (ESA). The potential for more species to be listed will continue to increase as more lands get converted to urban development.
2. Adverse habitat loss caused by one jurisdiction impacts all lands and jurisdictions within the same habitat.
3. Few jurisdictions are organized to be able to contribute the necessary staff and time to working in a regional context to solve problems.

4. Local jurisdictions' use of prevailing general planning, regulatory and implementation tools lack regional perspective and weight to protecting open space areas and resources.
5. Existing funding mechanisms are inadequate to provide the necessary funding for local governments to plan, manage and monitor natural areas. Funding requirements have to date unfairly fallen to the rural jurisdictions and landowners.
6. Less than 1 percent of biodiversity (nationwide) has been sampled for new chemical compounds for possible medical and other products. Some plants and animals may be destroyed before their scientific and medicinal values are determined.
7. State and federal endangered species acts impose species protection requirements on local governments without considering the staff and funding limitation of these agencies. Protection of species and their habitats could better be handled at the state and federal levels. As currently implemented, ESA places undue burdens on local governments and private developers.

Goal: Develop well-managed viable ecosystems or known habitats of rare, threatened, and endangered species, including wetlands.

Strategies

1. SCAG region through sub-regions, San Diego County, local, state, and federal jurisdictions develop ecosystem plans for ecosystems at-risk (mapped and micro from Gap and other identified sensitive habitats) and eventually all ecosystems, working in partnership under the lead of SANDAG and SCAG subregional councils. Continue to work together to manage and monitor areas. Ecosystem plans should address needs for protection, development, research, education, and multiple use needs and opportunities.
2. SCAG form regional biodiversity councils (of local, subregional, state and federal jurisdictions under local government leadership) for continuity in dialogue, pooling of expertise and information, and mutual aid in modeling, management and monitoring of biodiversity areas. This could be done under specific, separate agreements or affiliation of key state and federal jurisdictions with SCAG.
3. SCAG and subregions should explore strategies for management of open spaces once acquired. Options include the establishment of resource management agencies, special open space districts, conservancies, and private companies.
4. Public agencies and private land owners should marshal their resources and proactively plan for the long-term open space needs of the community, subregion, or the region. Ecosystem planning would fulfill the bulk of NEPA, CEQA and permitting requirements such as Clean Water Act and ESA requirements, thus expediting the review process of projects proposed in the region. The plans would also provide land use predictability for all interests. The tiering of EIRs' could result in substantial cost and time saving for communities and private developers.
5. Plans utilize applicable market and cost/benefit analytical tools as well as scientific data to determine the amount and configuration of permanent ecological open spaces, and the true cost and benefits of a development proposal.

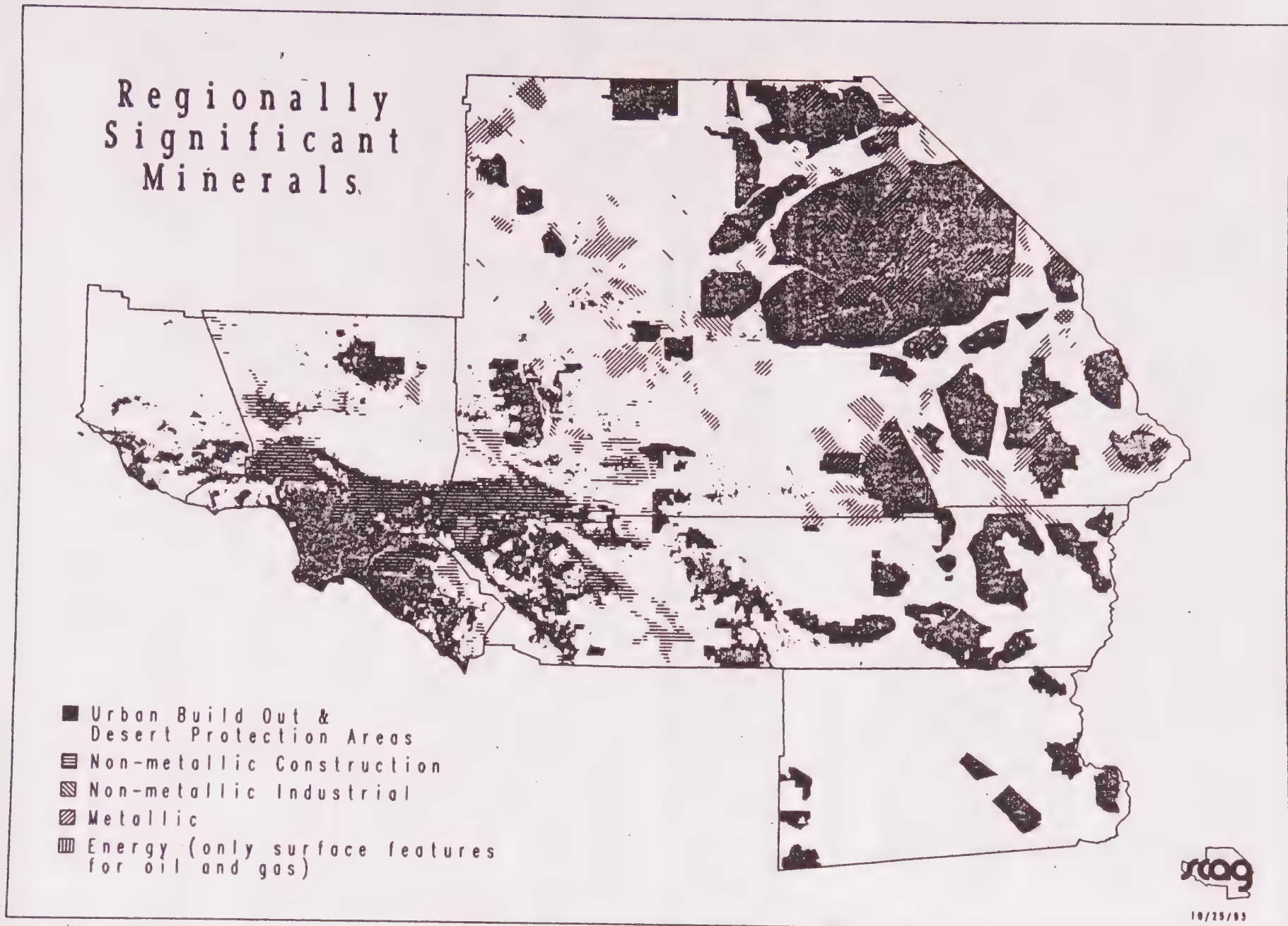
6. In the Southwest Ecoregion, until ecosystem plans are written and for the purposes of RCP allocations, direct growth into large acreage communities. In this region there are about 10 communities, some at risk and some not, each containing over 150,000 acres and a total of about 1,175,000 private land acres. With the exception of Orange County these are fairly evenly spread among the SCAG counties (*see* Figure 9-7). Not all acres are appropriate for development. The Southwest Ecoregion Committee (Strategy No. 2) should coordinate the development of guidelines and criteria to determine the viability of ecosystems, the areas appropriate for development and areas best left undeveloped.
7. SCAG research the complexity of funding opportunities (Section C above) for habitat planning, acquisition, management, and monitoring as well as incentives to private landowners for participation where possible to minimize the acquisition burden). State and federal jurisdictions in the SCAG area should be involved. Large amounts of capital will be needed in aggregate on a sustained basis to cover planning, implementation, and monitoring. The funding should be largely publicly provided with an emphasis on assessment districts and state and federal funding to be assured of the necessary amount and sustainability. Implement what can be done through local authorities and initiatives and work with state and federal jurisdictions and elected officials for the remainder.

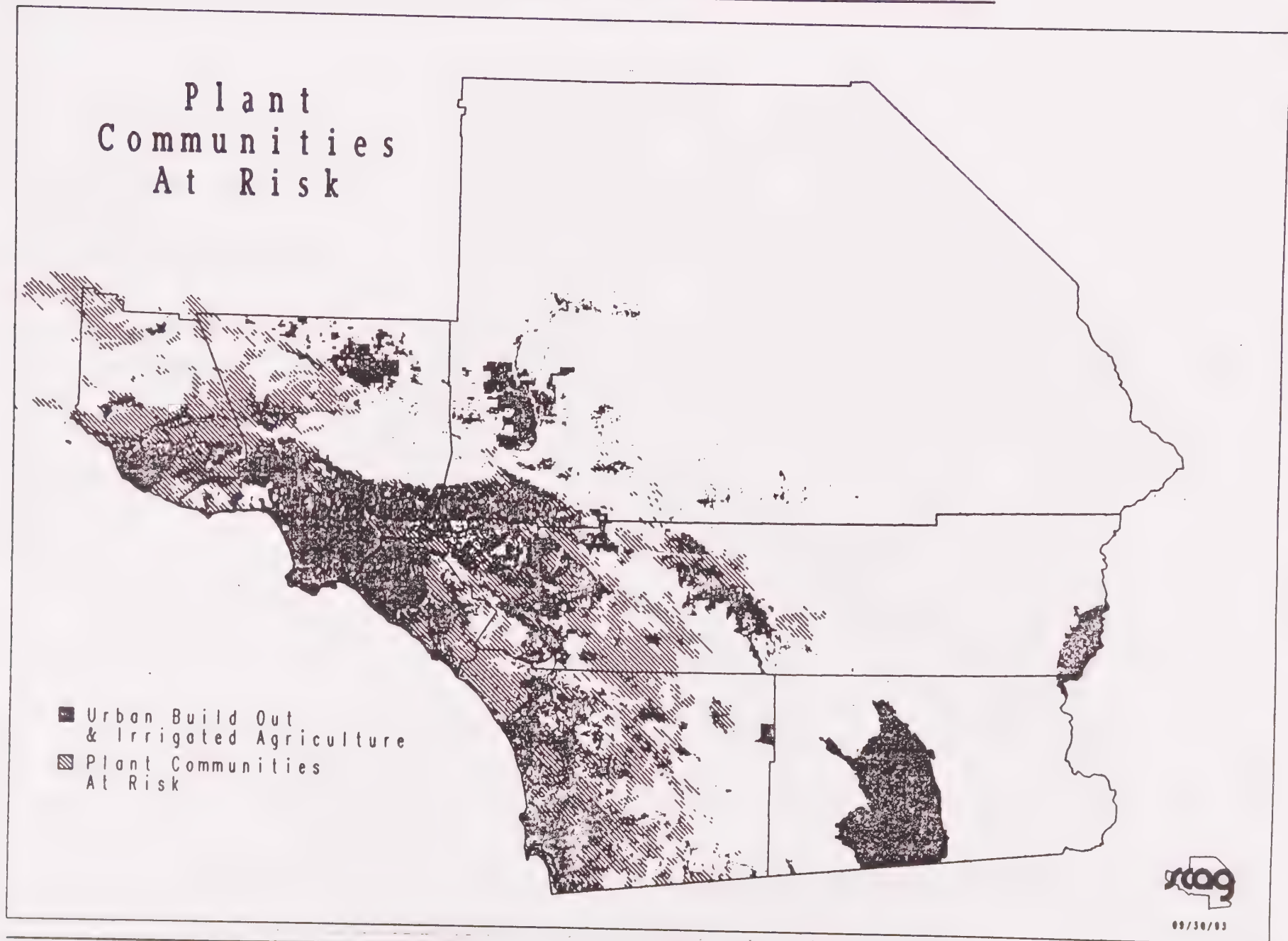
5. GREENBELTS

Greenbelts are an important open space attribute and represent the sum total of all the all the other open space elements together into a defined pattern that, along with attention to scenic and cultural values, gives visual definition and character to the urban-open space landscape elements. As visual elements, greenbelts provide psychological relief to the otherwise dreary urban "hardscape" that so characterizes Southern California. Landscape Architect, Garrett Eckbo observed that open space is an indispensable element in urban design:

"Architecture, trees and open spaces are the basic complimentary elements of urban design. City planning which does not make possible good architecture, good tree culture, and adequate open space, is failing to reach its potentials. The city which is not beautiful is not functional and hence a waste of all time, energy, labor, and material which went into its construction."

Action toward achieving all the other goals with the strategies previously outlined, and along with attention to designs, scenic and cultural values noted above will result in the greenbelt system that will characterize the SCAG region and its communities. SCAG should coordinate research to quantify the social and economic values and benefits of greenbelts—mental well-being, crime reduction, property values, community stability, and land-use efficiency.





Chapter Nine • Open Space and Conservation

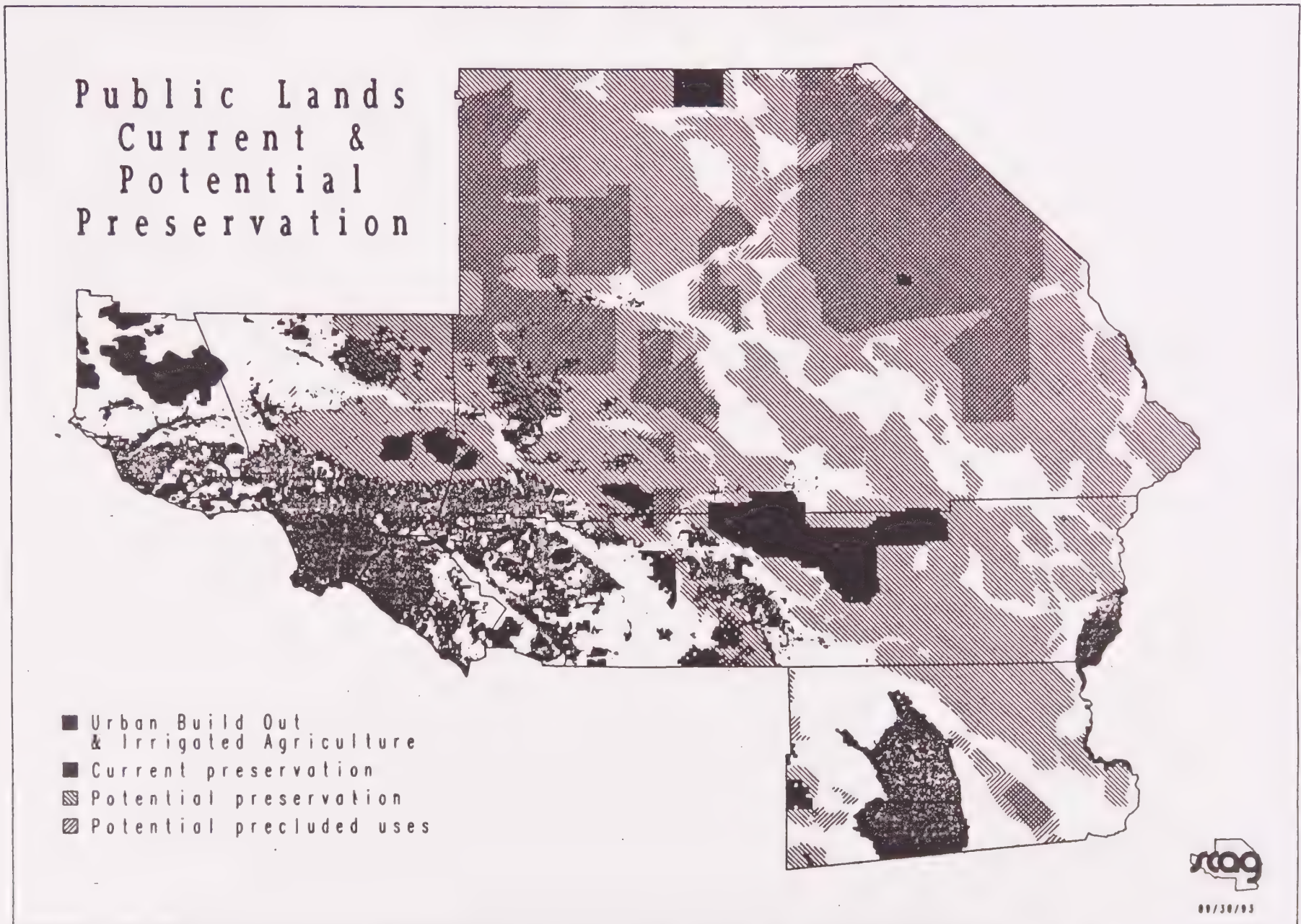
Table 1-1 HOLLAND PLANT COMMUNITIES IN SCAG PORTION OF THE SOUTHWEST ECOREGION - SUMMARY BY COUNTY *

Column	1	2	3	4	5	6	7	8	9	10	11	12
County	Total Area of County in Ecoregion	Area in Natural Communities			Communities At-Risk			Communities Not At-Risk				
		Total	Public	Private	Total	Public	Private	Total	Public	Private	Urban	Rural
Los Angeles	2,949	1,681 57%	1,073 64%	609 36%	348 21%	80 23%	268 77%	1,333 79%	993 74%	341 26%	64 24%	204 76%
Orange	798	302 38%	112 37%	191 63%	171 57%	28 16%	143 84%	131 43%	84 64%	48 36%	40 28%	103 72%
Riverside	2,223	1,349 61%	690 51%	659 49%	570 42%	227 40%	343 60%	779 58%	463 60%	316 40%	73 21%	270 79%
San Bernardino	1,373	967 70%	708 73%	259 27%	92 10%	20 22%	72 78%	875 90%	688 79%	187 21%	35 48%	37 52%
Ventura	1,828	1,410 77%	896 64%	514 36%	479 34%	100 21%	379 79%	931 66%	796 85%	135 15%	57 15%	322 85%
All Counties	9,171	5707 62%	3479 61%	2232 39%	1660 29%	455 27%	1205 73%	4047 71%	3024 75%	1027 25%	265 22%	940 78%

* Area in square miles and %

Instructions to read:

1. Col 2 = that portion of total county area that is still natural. 7. Col 6 and Col 7 areas = Col 5 area.
2. Col 2's % = Col 2 area divided by Col 1 area.
3. Col 3 area + Col 4 area = Col 2 area.
4. Col 3's % = Col 4's % = 100 (i.e. relates only to Col 2 area).
5. Col 5 is that portion of Col 2 that is at risk.
6. Col 5's % = Col 5 area divided by Col 2 area.
8. Col 6's % + Col 7's % = 100 (i.e. relates only to Col 5 area).
9. Col 8 is that portion of Col 2 that is not at risk.
10. Col 8 % = Col 8 area divided by Col 2 area.
11. Col 9 and Col 10 area = Col 8 area.
12. Col 9's % + Col 10's % = 100.



Chapter 10



WATER RESOURCES

A. INTRODUCTION

Water has played a central role in the development and growth of the SCAG region. Major efforts have been initiated to supply a growing population with adequate amounts of water. Early in the century, it became apparent that local supplies of water would not be sufficient to satisfy the region's thirst. Since then major construction of a water supply infrastructure has, and continues to bring in water from areas where water is more plentiful, such as the Owens Valley, the Bay Delta area in Northern California, and the Colorado River. Despite these outside sources, recent droughts have continued to make the issue of water critical in the region. New water supply, management, and conservation techniques are being explored to create a more reliable long-term supply of water. These techniques include water recycling, the more effective use of groundwater basins, desalination, improved irrigation techniques, and better storage facilities.

As part of the development of the Regional Comprehensive Plan (RCP), SCAG signed a memorandum of understanding (MOU) with the Metropolitan Water District (MWD), the largest wholesale water agency in the region, to develop a Water Resources Component. This MOU represented an historic joint effort to better coordinate the planning for water resources in the region with the more traditional planning carried out by SCAG, such as transportation and growth management. MWD has developed a water resources component that projects water supply and demand to the year 2010 and identifies the critical water supply and demand issues as well as the process for ensuring adequate water supplies in the future. This chapter (Sections B through F) contains the majority of MWD's plan. A more extensive version of the plan, which includes

detailed information on the factors that drive water demand in the region and the available water sources, can be obtained by contacting either SCAG or MWD and requesting a copy.

MWD, however, does not serve all of the SCAG region. For those areas outside of the MWD region, SCAG surveyed numerous water agencies to ensure that the entire region was represented in the RCP. The survey included projections of water supply and demand in these agencies as well as the issues they face in securing adequate supplies for their growing communities. The results of the survey are summarized in Section G through of this chapter.

B. THE METROPOLITAN WATER DISTRICT SERVICE AREA

1. SUPPLY AND DEMAND OF REGIONAL WATER

Delivery of adequate water supplies to the semi-desert and desert environments of Southern California has been a central issue for more than 200 years. During that time, increasingly sophisticated water delivery systems have been developed, together with the wholesale, retail, and regulatory agencies necessary to ensure reliable supplies of quality water to accommodate the demands of a growing region. While water agencies have no direct responsibility for land use planning, it is clear that the urban development and economy of Southern California would be dramatically different without adequate and reliable supplies of water for irrigation, domestic, and industrial use.

Local surface water, groundwater, and reclaimed water sources currently provide only about 40 percent of the six-county SCAG regional water supply. Local water sources are fully developed and are expected to remain relatively stable in the future, with the exception of reclaimed water use. The remaining 60 percent of the regional water supply is currently imported from outside of the region. The continued availability of water from outside of the region is uncertain at current levels. The enlargement of the East Branch of the California Aqueduct will facilitate increased delivery from the State Water Project (SWP) systems. However, dependable yield from the SWP is expected to decrease slightly over time as water use in areas of origin in northern California increases and is expected to be further reduced due to increasing allocations of water for environmental needs in the Delta. The amount of water that California imports from the Colorado River under California's apportionment is expected to decline substantially in the near future with increasing demand for water in Arizona and Nevada.

Is the current water supply adequate to accommodate future demand? Recent population projections indicate that the region may grow by approximately five million residents by the year 2010. Substantial increases in urban water demand and loss of dependable supplies may result in a projected shortfall of about 0.56 million acre feet (MAF) within MWD's service area in 2010 with existing water supplies and under average hydrologic conditions. Clearly, substantial changes in levels of consumption and supplies of water will be required to meet expected water demands to sustain the region's growth and economic health.

2. THE RELATIONSHIP OF THE METROPOLITAN WATER DISTRICT AND THE WATER RESOURCE ELEMENT OF SCAG'S REGIONAL COMPREHENSIVE PLAN

Water facilities are part of the region's infrastructure system in the same way that electrical power, natural gas, waste treatment, and other utilities are considered infrastructure. Therefore, development of an appropriate and adequate water supply infrastructure follows and is dependent on the anticipated level of growth for the region. The inexorable interrelationship between land use and water supply planning points to the conclusion that the two areas should be coordinated to the fullest extent feasible.

In response to federal and state mandates and the need for better regional planning, SCAG is developing a RCP which will have 14 integrated components (Growth Management, Regional Mobility, Housing, Air Quality, Economic Development, Energy, Hazardous Waste Management, Integrated Solid Waste Management, Open Space and Resources, Water Resources, Water Quality, Finance, Human Resources and Services, and a Strategic Element). The Water Resources chapter will focus on current and future water supply and conservation to meet the needs of the SCAG region.

At the request of SCAG, the Metropolitan Water District of Southern California (MWD) will prepare the RCP's Water Resources Chapter for its service area. The MWD service area is 5,139 square miles of California's coastal plain and extends from the city of Oxnard to the international boundary with Mexico. MWD's service area within the SCAG region, as shown in Figure 10-1, includes portions of Ventura, Los Angeles, Riverside, and San Bernardino counties and nearly all of Orange County. Although Imperial County is part of the SCAG region, it is not served by MWD. The coastal portion of San Diego County is served by MWD through the San Diego County Water Authority (SDCWA) but it is not a part of the SCAG region. Table 10-1 shows the MWD service area accounting for approximately 10 percent of the total SCAG land area and 85 percent of the total 1990 SCAG population.

The Water Resources chapter for the MWD service area is based primarily on the updated 1990 Regional Urban Water Management Plan, which includes a description of MWD's management policies and the delivery system. The 1990 Regional Urban Water Management Plan was prepared in response to the Urban Water Management Planning Act which requires every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet per year (AFY) of water to prepare and adopt a plan every five years. The first plan was prepared in 1985 and revised in 1990.

Addressing the need to coordinate water supply and land use planning, AB 455 of the 1992 Legislative Session, which is now law, encourages local agencies that are approving development projects to coordinate and consult with water supply agencies to ensure that proper water supply planning occurs.

As a wholesale water agency, MWD is responsible for providing a high quality, reliable imported water supply to supplement local water supplies and, in conjunction with its member agencies, to implement regional water supply and demand management strategies to accommodate the region's existing and future needs. MWD relies on regional planning agencies to provide accurate regional growth estimates, which serve as the basis for water supply planning. SCAG and the San Diego Association of Governments (SANDAG), as regional planning agencies develop population, housing and employment forecasts to the year 2010. Based on

Figure 10-1
MWD SERVICE AREA

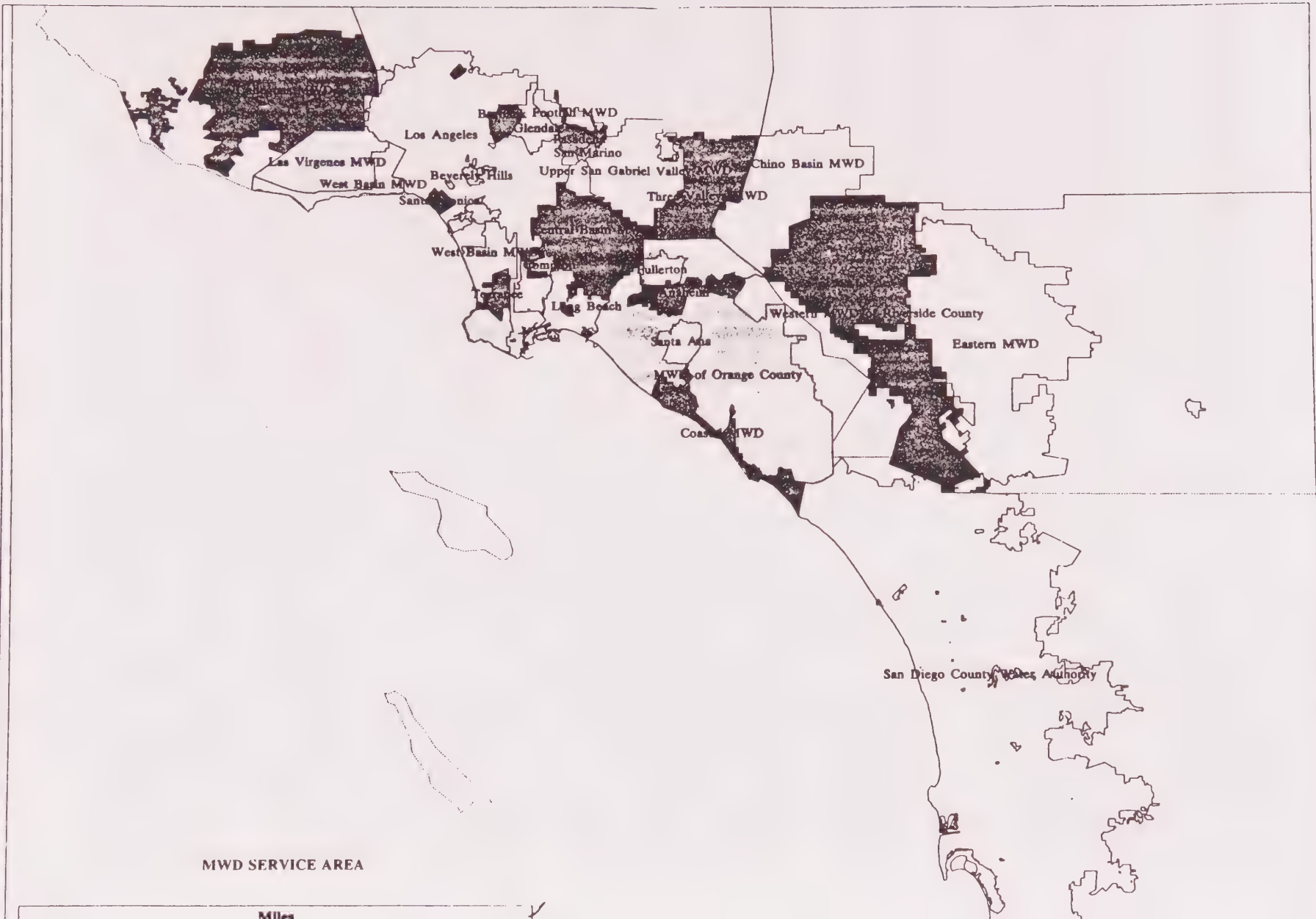


Table 10-1

**AREA AND POPULATION OF
THE MWD SERVICE AREA WITHIN THE SCAG REGION
1990**

County	Total County	MWD Service Area	Percent MWD
Land Use (Sq.Mi)			
Imperial	4,175	0	0
Los Angeles	4,080	1,394	34.2
Orange	786	695	88.4
Riverside	7,249	1,043	14.4
San Bernardino	20,154	242	1.2
Ventura	1,865	349	18.7
Total	38,309	3,722	9.7
Population (1,000s)			
Imperial	109	0	0
Los Angeles	8,877	8,208	92.6
Orange	2,411	2,411	100.0
Riverside	1,170	862	73.7
San Bernardino	1,418	560	39.5
Ventura	669	476	71.2
Total	14,655	12,516	85.4

Source: MWD, 1993; U.S. Census

these regionally adopted forecasts, MWD is able to project future water needs and develop appropriate and adequate infrastructure. As presented in Table 10-2, the population of the MWD service area within the SCAG region is projected to increase from 12.5 million in 1990 to 16.2 million by the year 2010. This represents an increase of 3.7 million people or 29.7 percent during the 20 year period. The fastest growth area will be Riverside County where population is projected to more than double during the period.

Table 10-2
POPULATION PROJECTIONS
MWD SERVICE AREA
1990 AND 2010

County	1990	2010	Growth	Percent Growth
Los Angeles	8,207,800	9,896,100	1,688,300	20.6
Orange	2,410,700	3,067,300	656,600	27.2
Riverside	862,200	1,796,800	934,600	108.4
San Bernardino	559,600	864,700	305,100	54.5
Ventura	476,100	607,200	131,100	27.5
Within SCAG Region	12,516,400	16,232,100	3,715,700	29.7
San Diego	2,361,400	3,293,000*	931,000	39.5
MWD Service Area	14,877,800	19,525,100	4,647,300	31.2

Source: SCAG Draft RCP, 1993, SANDAG Draft Series 8 Forecasts, 1993

* SANDAG has just released higher population projections under its "Economic prosperity" alternative.

Under the Metropolitan Water District Act, "districts may be organized...for the purpose of developing, storing, and distributing water for domestic purposes and may be formed of the territory included within the boundaries of any two or more municipalities, which need not be contiguous..." MWD has the power of eminent domain, authority to occupy public streets and other public lands, the authority to borrow and create indebtedness, and to levy and collect taxes, as well as acquisition, distribution, and sale of water. As Table 10-3 shows, MWD's member agencies include 12 Municipal Water Districts, 14 member cities, and the San Diego County Water Authority. Member agencies of MWD either provide retail water service directly to consumers or in turn wholesale imported water to retail water purveyors. Approximately 300 retail water purveyors serve the 250 cities and communities within MWD's service area.

3. OBJECTIVES OF THE WATER RESOURCES ELEMENT

The objectives of the Water Resources chapter for the MWD service area are as follows:

- Clarify the relationship of the Water Resources Element for the MWD service area and the SCAG RCP
- Provide an assessment of regional water demands based on SCAG's growth forecasts for the MWD service area
- Provide an assessment of current water supplies to the MWD service area
- Provide a system of programs that will meet the requirements of a reliable urban water supply for the MWD service area and appropriate watershed mitigation measures for the SCAG Master Environmental Assessment (MEA)
- Identify issues for resolution in the next RCP update.

Table 10-3

MEMBER AGENCIES OF
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

<u>Member Cities</u>	<u>Municipal Water District</u>
1. Anaheim	15. Calleguas Municipal Water District
2. Beverly Hills	16. Central Basin Municipal Water District
3. Burbank	17. Chino Basin Municipal Water District
4. Compton	18. Coastal Municipal Water District
5. Fullerton	19. Eastern Municipal Water District
6. Glendale	20. Foothill Municipal Water District
7. Long Beach	21. Las Virgenes Municipal Water District
8. Los Angeles	22. Municipal Water District of Orange County
9. Pasadena	23. Three Valleys Municipal Water District
10. San Fernando	24. Upper San Gabriel Valley Municipal Water District
11. San Marino	25. West Basin Municipal Water District
12. Santa Ana	26. Western Municipal Water District of Riverside
13. Santa Monica	
14. Torrance	<u>County Water Authority</u>
	27. San Diego County Water Authority

Source: The Regional Urban Water Management Plan, MWD, 1990

4. EXISTING REGIONAL WATER DEMAND AND SUPPLY

a. Regional Water Demands

In general, as the region's population increases, so does the overall demand for water. In addition to population changes, socio-economic characteristics, geographic growth, climate and water conservation practices influence regional water demand. The factors that increase per capita water use are, increased household income, increased labor force, increased commercial development, and growth in the inland region. The factors that decrease per capita use are, increased household size, increased proportion of multifamily housing, changes in the industrial mix, and urban water conservation. Local climate and weather are also determinants of water useage because of the following factors:

- Geographic variations in normal seasonal conditions.
- Geographic variations in per capita demand.
- Seasonal Population.
- Prolonged drought conditions.

Southern California is characterized as having a Mediterranean, or dry summer, subtropical climate. MWD's service area can be divided into three broad climate zones: The Coastal Zone, the Inland Valley Zone, and the Desert Zone. Average residential per capita use ranges from 97 gallons per person per day (GPCD) in the Coastal Zone to 162 GPCD in the Desert Zone.

Total water use in the MWD service area for fiscal year 1990 was approximately 4.0 million acre-feet (MAF), with 3.6 MAF used for municipal and industrial (M & I) purposes and 0.4 MAF used for agricultural purposes. The major components of the M & I water use and the corresponding percentage of use to total M & I use are the following:

• Single-family residential	45%
• Multi-family residential	21%
• Commercial and Institutional	17%
• Industrial	6%
• Meter Error and System Losses	5%
• Fire Fighting, Line Cleaning, Other	3%
• Public	<u>3%</u>
	100%

b. Regional Water Supplies

Water demands in the MWD service area are met by both local and imported sources. About one-third of the water supply is from local sources, which is comprised of about 90 percent groundwater and 10 percent surface and reclaimed water. Two-thirds of the water supply for MWD's service area is imported via the Los Angeles Aqueduct serving the City of Los Angeles, MWD's Colorado River Aqueduct, and through the MWD's entitlement to State Water Project (SWP) water. In MWD's service area for fiscal year 1990, local supplies provided 1.3 MAF, MWD's imported supplies provided 2.5 MAF, and the Los Angeles Aqueduct provided 0.2 MAF for a total water supply of 4.0 MAF.

C. PROJECTED WATER SUPPLY AND DEMAND

1. PROJECTED WATER DEMAND

a. Projection Methodology

MWD uses an econometric model to project water demand. The model was developed in the early 1960s by the U.S. Army Corps of Engineers' Institute for Water Resources and recently updated to incorporate water use patterns of Southern California residents and businesses. Separate projections for the four major water use sectors (residential, commercial, industrial, and public/unaccounted) are estimated by MWD.

To make long-term water demand projections, economic, demographic, and climate factors are taken into account. Regarding residential water demand forecasting, the model takes into consideration the following variables: population, housing mix, household occupancy (persons per household), housing values, weather conditions, and the implementation of conservation measures. SCAG's and SANDAG's projected population, housing, and employment data are basic demographic input for the model. The model assimilates the effects of water conservation measures currently practiced in the MWD service area since 1980. These measures include savings from the 1981 and 1992 California Plumbing Codes, public education programs, and the effects of changes in retail prices from 1980-1990. For projections of future water needs, the model also incorporates future water conservation practices and projected increases in water rates.

Projected commercial and industrial water demands are a function of employment in the numerous types of commercial, institutional, and manufacturing establishments as well as water/wastewater prices and conservation practices. SCAG's and SANDAG's employment projections were used in the model.

A key assumption of the model is the incorporation of varied weather conditions. MWD is able to project water demands during years of above-average or below-average rainfall and temperature. The analysis has established that the above-normal water demand, occurring on average every one-in-20 years, was approximately seven percent greater than normal (average) water demand.

b. Conservation and Best Management Practices

During the past several years, a group of urban water agencies, the environmental community, and other public interest groups have worked as the State Water Conservation Coalition to reach a consensus on a process of standardized water conservation practices known as "Best Management Practices" (BMP). Under the BMP process, participating water agencies commit to use "good faith efforts" to implement proven water conservation measures, develop new measures, and implement them as they become feasible. MWD has committed to implementation of 16 BMPs during the next 10 years.

These 16 MWD Best Management Practices are the following:

1. Interior and exterior water audits and incentive programs for single-family residential, multi-family residential, and governmental/institutional customers.
2. Plumbing new and retrofit:
 - A. Enforcement of requirement for ultra-low flush toilets in all new construction beginning January 1, 1992;
 - B. Support of State and Federal legislation prohibiting sale of toilets using more than 1.6 gallons per flush; and
 - C. Plumbing retrofit.
3. Distribution system water audits, leak detection and repair.
4. Metering with commodity rates for all new connections and retrofit of existing connections.
5. Large landscape water audits and incentives.
6. Landscape water conservation requirements for new and existing commercial, industrial, institutional, governmental, and multifamily developments.
7. Public information.
8. School education.
9. Commercial and industrial water conservation.
10. New commercial and industrial water use review.
11. Conservation pricing.
12. Landscape water conservation for new and existing single-family houses.
13. Water waste prohibition.
14. Water conservation coordinator.
15. Financial incentives.
16. Ultra-low-flush toilet replacement.

As a result of established ongoing regional conservation programs and anticipated savings from the implementation of BMPs in the MWD service area of the SCAG region, water savings of 636,900 AFY are projected by the year 2010. To facilitate the implementation of BMPs, MWD has established its Conservation Credits Program. Under this program, MWD provides a financial incentive to its member agencies for the implementation of conservation programs that have a demonstrated ability to save water. MWD's incentive payment is based on the lesser of \$154 per acre foot of water saved during the life of the program or one-half the cost of the proposed program.

c. Consumers Response to Water Rates Changes

It should be noted that MWD is a wholesale water agency. As such, it has no retail customers and, therefore, no retail water rates. MWD has no authority, nor does it have the ability to establish retail water rates in its service area. Any discussions of retail rates, such as increasing block, seasonal prices, and other conservation incentive structures is included in plans prepared by local agencies. In fact, Water Code Section 10610.2(b) states that "The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level." The following sections describe the average retail prices in Southern California and present the theoretical relationships between prices and water use.

A survey of retail prices of water services in Southern California was conducted as part of a MWD water demand study. Table 10-4 summarizes retail "average prices" of water obtained from 45 agencies in the six counties in MWD's water service area. The 1980 weighted average price was 72 cents per 1,000 gallons, while the 1990 average price has risen to \$1.55 per 1000 gallons, an apparent increase of 115 percent over 10 years. However, after converting the 1980 value to 1990 dollars (thus removing the effect of general price inflation), the real increase in water price was 40 percent for the decade or 4 percent per year.

The understanding of consumer behavior in responding to changes in water rates is critical to the efficient management of urban water demand. Retail water agencies in Southern California can implement price incentives only if they can predict the effects of price changes upon the current and future use of water by their customers. However, the current understanding does not allow predictions of the effectiveness of alternative rate designs in reducing water use to a level of accuracy and predictability that is required in water supply planning.

Economists predict the consumer response to price based on the theory which states that the quantity demanded is a function of price paid for the last unit of water used. This responsiveness to price is often termed the price elasticity of water demand. According to historical data, MWD statistically estimated, by regression analysis, price elasticity for its service area. When water price increases are implemented together with non-price conservation measures, the interrelationship of price and the other measures must be considered. Based on historic data and other studies regarding price and conservation, it was estimated that 50 percent of the price effect (elasticity) is exerted in BMP, or conservation compliance. These conservation measures include water-efficient plumbing, home and governmental audits, landscaping measures for existing construction, distribution system leak detection and repair, commercial and industrial conservation,

Table 10-4
1990 RETAIL WATER PRICES IN SOUTHERN CALIFORNIA

County	Number of Sampled Agencies	Range of Average Prices \$/1,000 gal. \$/AF	Weighted County Average \$/1,000 gal. \$/AF
Los Angeles	17	1.11 - 2.63 362 - 857	1.62 528
Orange	12	0.84 - 2.42 274 - 789	1.37 446
Riverside	4	0.91 - 2.05 297 - 668	1.04 339
San Bernardino	2	0.92 - 1.35 300 - 440	1.14 371
San Diego	6	1.52 - 2.72 496 - 887	1.70 554
Ventura	4	1.42 - 1.79 463 - 584	1.56 509
TOTAL	45	0.84 - 2.72 274 - 887	1.55 505

Source: MWD 1990, Regional Urban Water Management Plan for the Metropolitan Water District of Southern California.

Note: The 45 agencies surveyed serve approximately nine million people (or 61 percent of the population in MWD's service area).

ultra low-flush toilet retrofits, conservation pricing, public education and information, metering, and water waste prohibition. The remaining 50 percent of the price effect was estimated to represent savings from behavioral changes and commercial and industrial conservation not explicitly specified in the BMPs. A more technical discussion on price elasticity can be found in MWD report "Municipal and Industrial Water Use In the Metropolitan Water District Service Area: Interim Report No. 4" prepared in June 1991.

Projected real increases (without inflation) in retail prices as shown in Table 10-5 have been used for water demand projections.

Table 10-5
PROJECTED INCREASES IN
RETAIL PRICES
1990-2010

County	Percent Change
Los Angeles	26
Orange	33
Riverside	24
San Bernardino	19
San Diego	49
Ventura	44

Source: MWD, 1991 Municipal & Industrial Water Use in the MWD Service Area Interim Report No.4.

d. Projected Water Demand

Projected urban water demands are based on SCAG and SANDAG population, household, and employment projections developed under the Growth Management Element of the RCP, and take into account full implementation of BMPs and projected increases in retail water rates. As shown in Table 10-6, the implementation of best management practices will result in water conservation savings of about 770,000 AF by the year 2010. Urban water demand within MWD service area is projected to increase from 3.60 MAF to 4.24 MAF by 2010 under average weather condition (1990 urban water demand was higher than normal due to the hotter and drier climate). Figure 10-2 shows the resulting urban per capita water use decreasing from 217 gallons per capita per day (gpcd) in 1990 to 194 gpcd by 2010, more than a 10 percent decrease in per capita water use.

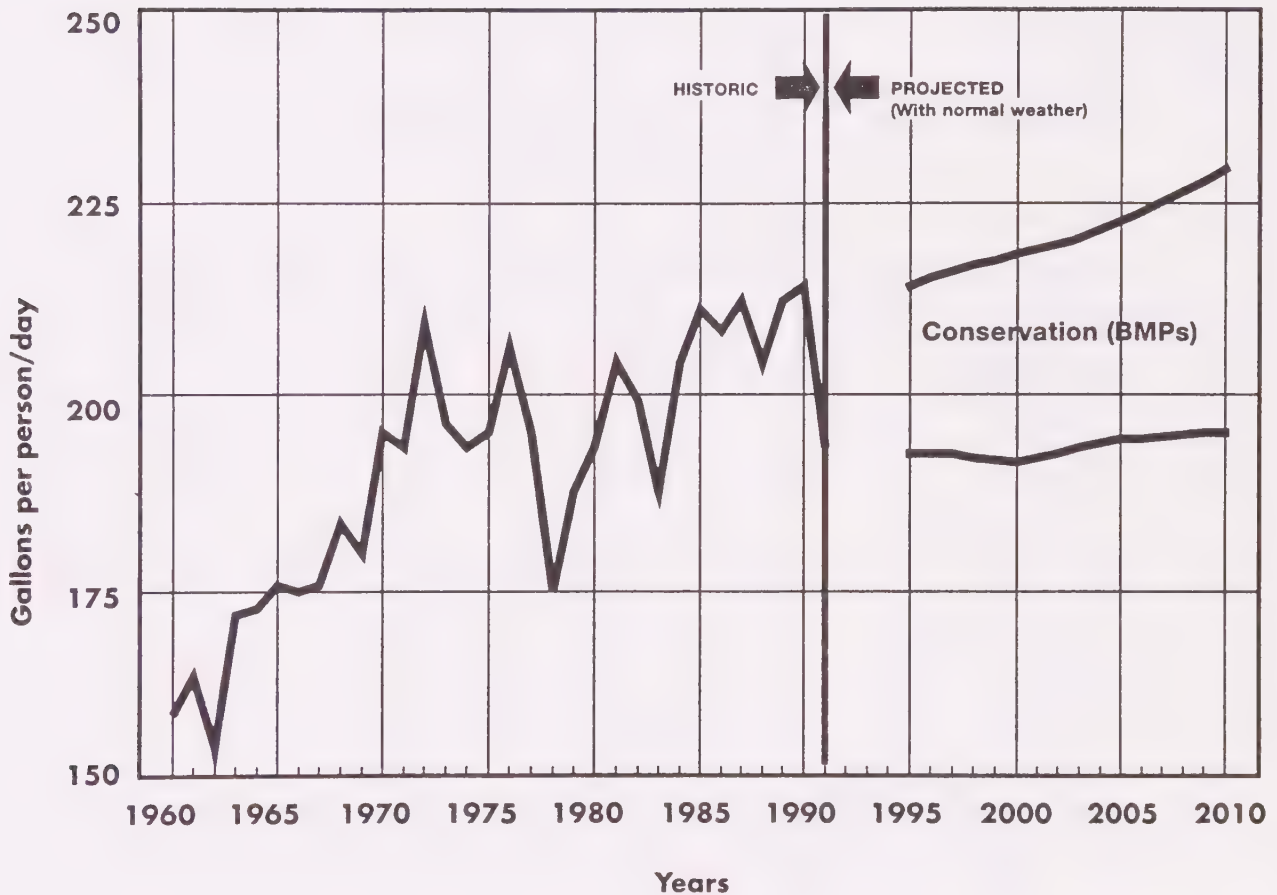
Table 10-6
URBAN WATER DEMANDS
IN MWD SERVICE AREA
1990 AND 2010
(AF)

2010				
County	1990 Actual	Without BMP's	Conservation Savings	With BMP's
Los Angeles	1,799,115	2,284,400	353,500	1,930,900
Orange	647,840	830,100	124,300	705,800
Riverside	236,855	590,300	91,900	498,400
San Bernardino	184,236	309,700	44,300	265,400
Ventura	115,091	155,000	23,100	131,900
With SCAG Region	2,983,137	4,169,500	637,100	3,532,400
San Diego	595,852	833,500	129,100	704,400
MWD Service Area	3,578,989	5,003,000	766,200	4,236,800

Source: MWD 1993

Figure 10-2

URBAN PER CAPITA WATER USE MWD SERVICE AREA



Based on SCAG Draft RCP 1993; SANDAG Draft Series 8 Forecast
Source: MWD, 1993

Table 10-7 shows that projected agricultural water demands in Metropolitan's service area are decreasing from 428,000 AF in 1990 to 299,000 AF by 2010. The largest reduction is projected in Riverside County. A significant portion of the agriculture in MWD's service area in Riverside County is in the path of immediate urbanization.

Table 10-8 and Figure 10-3 show the projected regional water demands for MWD's service area. Based on SCAG and SANDAG draft growth management plans, population within MWD's service area will increase from 14.9 million in 1990 to 19.5 million by the year 2010 (Table 10-8). Population is expected to grow approximately 30 percent from 1990 to 2010. With the implementation of water conservation best management practices and decreasing agricultural water demands, regional water demand is expected increase from 3.9 million acre-feet (MAF) to 4.5 MAF by 2010 under average weather condition. (Actual 1990 water demand was 4.0 MAF due to the hotter and drier climate). Hence, water demand is expected to increase approximately 15 percent from 1990 to 2010.

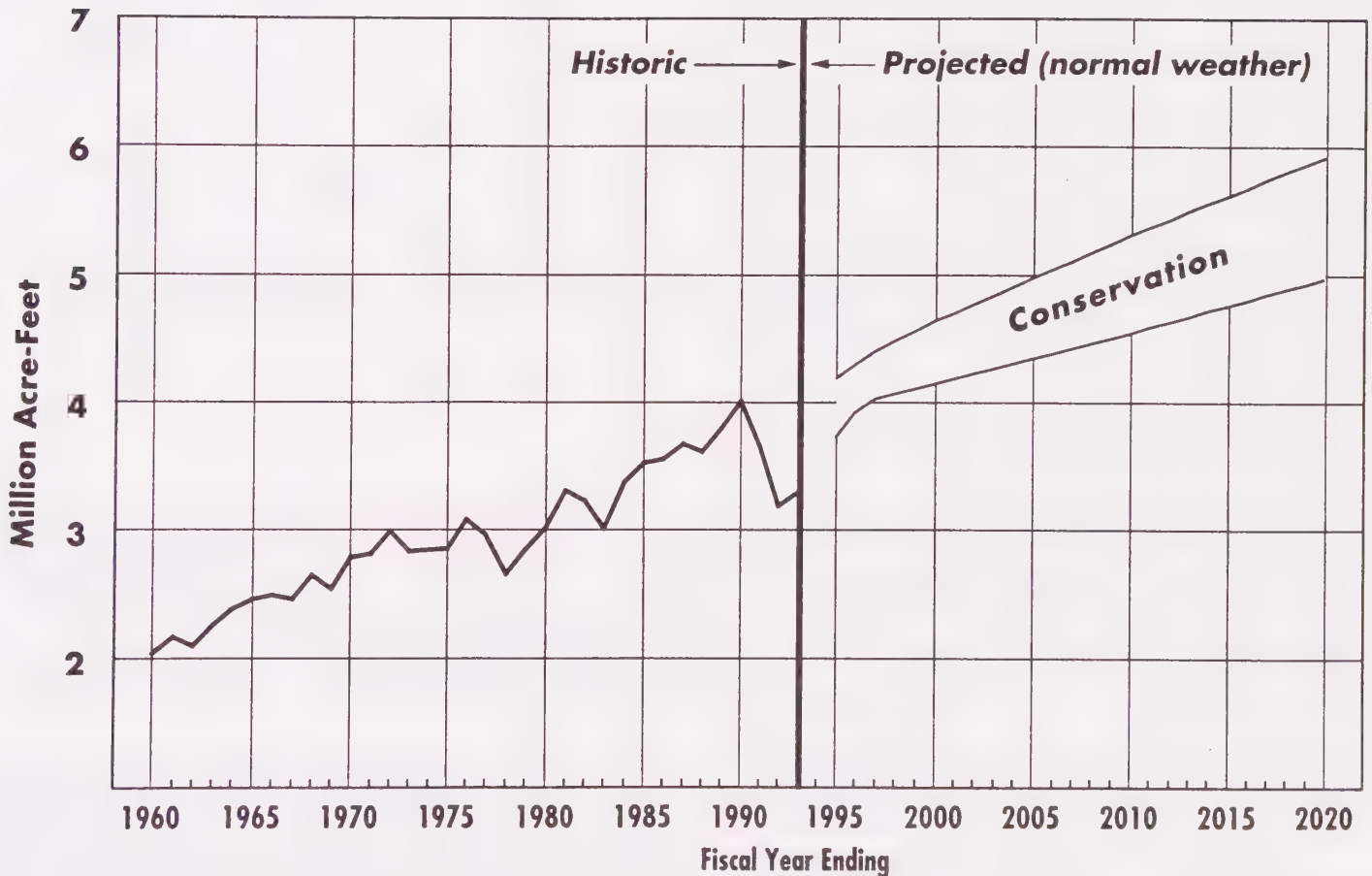
Table 10-7
AGRICULTURAL WATER DEMAND
MWD SERVICE AREA
1990 AND 2010
(AF)

County	1990	2010	Change
Los Angeles	3,900	3,500	-400
Orange	35,200	21,400	-13,800
Riverside	208,400	114,500	-93,900
San Bernardino	33,500	35,000	1,500
Ventura	25,600	16,200	-9,400
Within SCAG Region	306,600	190,600	-116,000
San Diego	121,200	108,000	-13,200
MWD Service Area	427,800	298,600	-129,200

Source: MWD, 1990 Agricultural Water Use in Metropolitan's Service Area, Report No. 1018

Figure 10-3

REGIONAL WATER DEMANDS MWD SERVICE AREA



Based on SCAG Draft RCP 1993; SANDAG Draft Series 8 Forecast
Source: MWD, 1993

Table 10-8

**ACTUAL AND PROJECTED WATER DEMAND IN THE
MWD SERVICE AREA
1990 AND 2010
(MAF)**

County	1990	2010
Los Angeles	1.80	1.93
Orange	0.68	0.73
Riverside	0.44	0.62
San Bernardino	0.22	0.30
Ventura	0.14	0.15
Within SCAG Region	3.29	3.73
San Diego	0.72	0.81
MWD Service Area	4.01	4.54

Source: MWD, 1993

2. PROJECTED WATER SUPPLY

As shown in Table 10-9, existing supplies in an average year are expected to total 4.00 MAF in the year 2010. Of the existing supplies, 1.05 MAF will come from local production, 0.40 MAF from reclaimed water, 0.37 MAF from the Los Angeles Aqueducts, 0.62 MAF from the Colorado River, and 1.56 MAF from the State Water Project. MWD is pursuing additional supplies of 1.02 MAFY through the implementation of a number of programs such as obtaining additional water from the Colorado River and State Water Project, water reclamation, groundwater recovery, water management and transfers. These programs, described in Section D, could increase total average year supplies to 5.02 MAF.

Also shown in Table 10-9 is the minimum supplies condition. The minimum supplies condition is equivalent to the 1991 experience when both Los Angeles Aqueduct and State Water Project supplies had dwindled after four previous critically dry years statewide (1987-1990). Based on historic weather data, it is estimated that the 1991 supply condition occurs about once in 50 years. Under this extreme drought condition, existing supplies for MWD service area could decrease to 2.40 MAF and water management and supply augmentation programs could increase total supplies to 4.35 MAF.

Table 10-9
EXISTING AND POTENTIAL WATER SUPPLY FOR THE
MWD SERVICE AREA
2010
(MAF)

	Average Year Supply	Minimum Year Supply
Existing Supplies		
Local Production	1.05	1.05
Reclaimed Water	0.40	0.40
Los Angeles Aqueducts	0.37	0.12
Colorado River	0.62	0.62
State Water Project	1.56	0.21
Total	4.00	2.40
Potential Increase in Supplies		
Additional Colorado River	0.45	0.45
Additional State Water Project & Transfer*	0.20	1.13
Reclaimed Water	0.27	0.27
Groundwater Recovery	0.10	0.10
Total	1.02	1.95
TOTAL SUPPLIES	5.02	4.35

Source: MWD, 1993

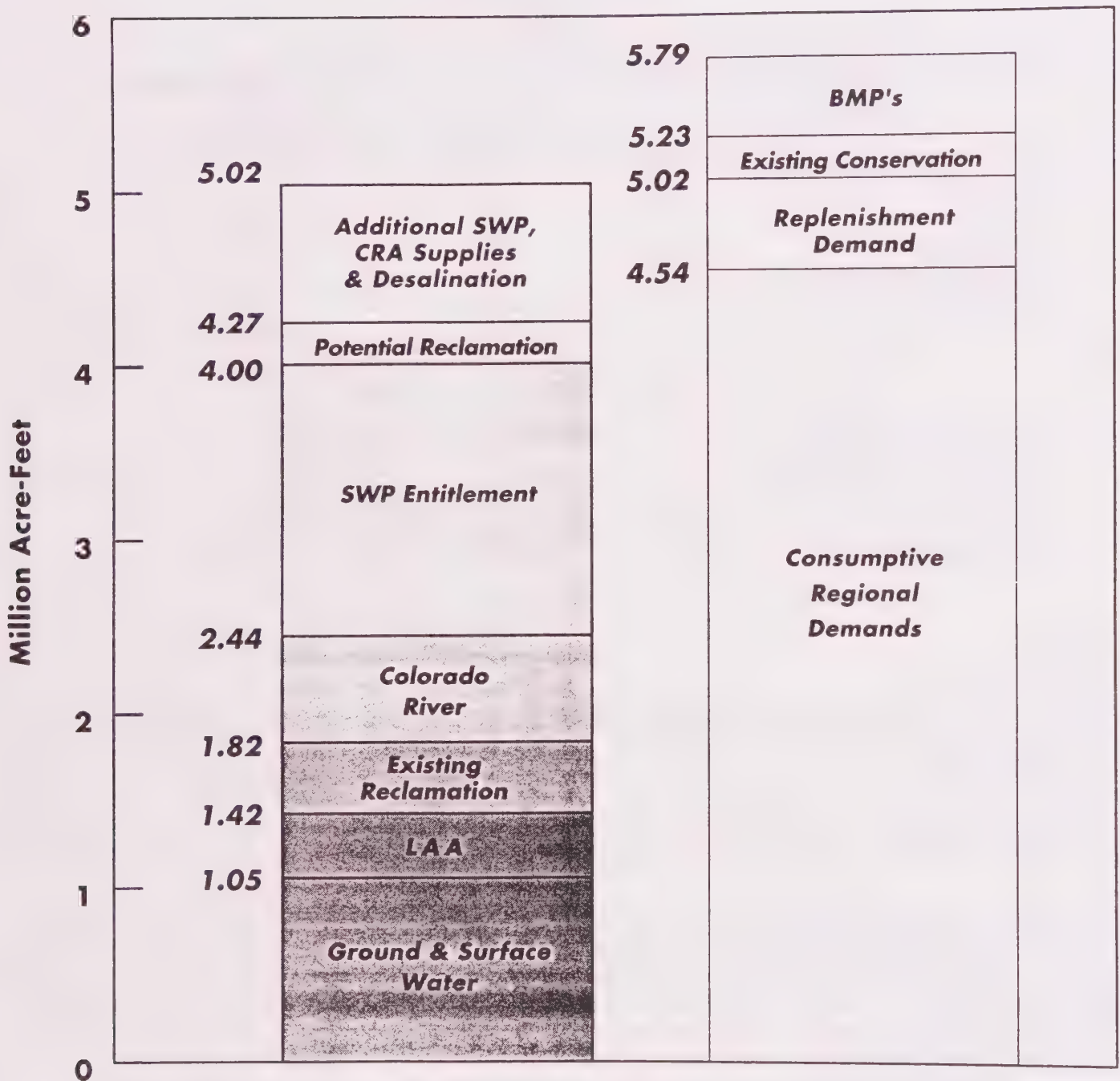
* Includes SWP water stored in surface reservoirs and groundwater basins in wet and normal years.

a. Projected Water Supply and Demand Balance

The projected water demand and supply balances for MWD service area are shown in Table 10-10 and Figures 10-4 and 10-5. As shown in Table 10-9, consumptive water demand for MWD's service area, under average weather conditions, is projected at 4.54 MAF in the year 2010. If no additional supplies are developed, MWD's service area could potentially experience a shortage up to 480,000 AFY under average weather conditions. Assuming shortages within MWD's service area are shared based on water needs, shortages within SCAG's region could potentially be 395,000 AFY. With supply augmentation and management programs being pursued an additional 1.02 MAF of water supplies is expected as shown in Table 10-9 and Figure 10-3.

Figure 10-4

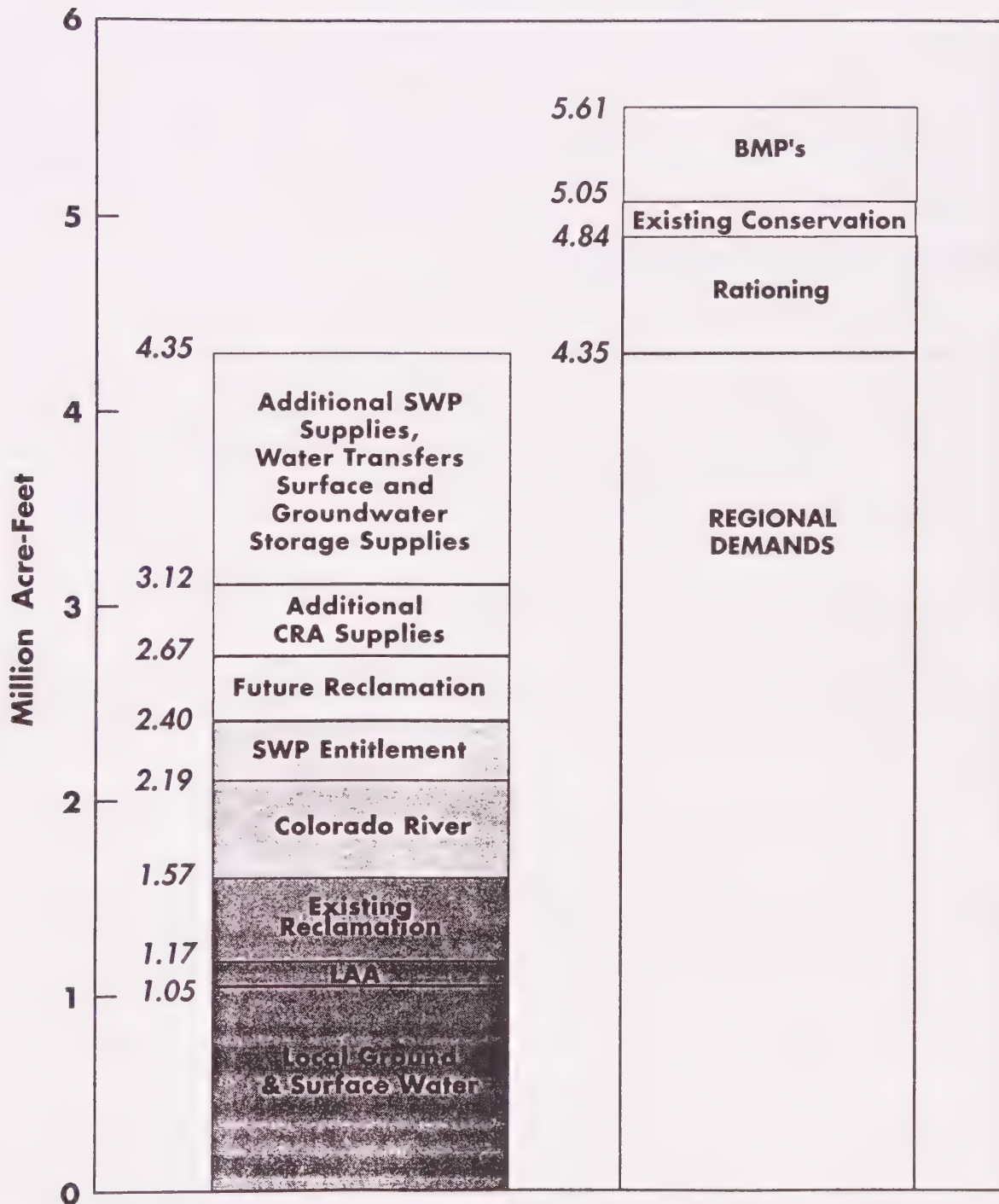
**DEMAND AND SUPPLIES IN 2010
AVERAGE YEAR CONDITION**



Source: SCAG Draft RCP 1993; SANDAG Series 8; MWD 1993

Figure 10-5

**DEMAND AND SUPPLIES IN 2010
MINIMUM SUPPLIES CONDITION**



Based on SCAG Draft RCP 1993; SANDAG Draft Series 8 Forecast
Source: MWD, 1993

D. PROGRAMS TO MEET FUTURE DEMANDS

1. COLORADO RIVER PROGRAMS

MWD is continuing its efforts to obtain additional Colorado River supplies. Both short- and long-range supplies are being pursued on intermittent and dependable bases, as appropriate. A number of programs being considered by MWD are described in this section.⁷ Long term studies by the Bureau of Reclamation indicate that surplus Colorado River water could be made available to MWD in the future in certain years. As the amount of Colorado River water available to MWD continues to be determined on an annual basis, surplus water cannot be relied upon as a dependable supply.

a. All American Canal and Coachella Canal Lining

Title II of Public Law 100-675 authorized the Secretary of the Interior to line 65 miles of the All American Canal and the Coachella Canal. The lining of the canals could potentially conserve nearly 100,000 AFY of water. The projects are to be constructed with 100 percent non-federal funding provided by MWD, Coachella Valley Water District, Imperial Irrigation District and/or Palo Verde Irrigation District. It is estimated that approximately 68,000 AFY would be conserved by the lining of the All American Canal, and 30,000 AFY by the lining of the Coachella Canal. The water conserved would be made available to one or more of these four agencies in accordance with the priorities to use of water contained in their water delivery contracts with the United States.

b. Interstate Underground Storage of Unused Colorado River Water

The states of Arizona, California, and Nevada are discussing the feasibility of increasing the interstate underground storage of unused Colorado River water. Under this concept, Colorado River water would be stored in a groundwater basin in central Arizona when unused water is available and made available when needed.

c. Phase II Water Conservation Program with Imperial Irrigation District

Under a Phase II water conservation program with the Imperial Irrigation District (IID), MWD would provide funding for constructing a regulatory reservoir and a spill-interceptor canal, lining canals with concrete, and further managing irrigation water on farms. Such a program could conserve 150,000 AFY. In return, the water conserved by this program would be made available to MWD.

d. Modified Irrigation Practices and Land Fallowing Proposal of Imperial Irrigation District

The implementation of a modified irrigation practice and land fallowing program with Imperial Irrigation District could provide 100,000 AFY of Colorado River water available to MWD for a two-year period. Under this proposal, farmers growing alfalfa in the Imperial Valley would enter into contracts, agreeing not to irrigate their crops for a 75-day period during the summer, thus saving an estimated 1.4 AF per

The projected yield from existing and potential supplies is estimated to total 5.02 MAF, which will meet consumptive demands of 4.54 MAF and have water stored in surface reservoirs and groundwater basins for use in drier years. The supply augmentations and water management programs (such as development of reclaimed water, development of storage strategies including conjunctive use of imported surface and local groundwater supplies, and water conservation) are consistent with mitigation measures for water supplies proposed in SCAG's 1989 Growth Management Plan Environmental Impact Report.

In the year 2010, regional consumptive demand with BMP implementation is expected to increase from 4.54 MAF to 4.85 MAF under drought condition due to the hotter and drier weather. At the same time, water supplies are expected to decrease. Under a record drought such as 1991, existing water supplies could dwindle to 2.40 MAF as shown in Table 10-9. Recognizing that it is too expensive to plan for no shortages under extreme drought conditions, MWD's reliability goal for its service area allows for a 10 percent reduction in water demand beyond BMPs at a frequency of one in 50 years. Hence, the water supply augmentation and water management programs being pursued are expected to yield 4.35 MAF to meet 90 percent of the region's consumptive demands (see Figure 10-5).

Table 10-10

**WATER SUPPLY AND DEMAND BALANCE FOR THE
MWD SERVICE AREA
2010
(MAF)**

	Average Year Supply	Minimum Year Supply
Projected Demands with BMPs	4.54	4.84
Existing Supplies	4.00	2.40
Potential Shortage with Existing Supplies	0.54	2.44
Potential Additional Supplies	1.02	1.95
Available for Storage	0.48	--
Potential Need for Demand Reduction	--	0.49

Source: MWD, 1993

acre, in return for compensation. Farmers could also enter into contracts, agreeing to fallow irrigated fields in return for compensation.

2. STATE WATER PROJECT PROGRAMS

In April, 1992, the Governor delivered a water policy statement outlining a comprehensive program to meet the water needs of urban, agricultural, and environmental interests in the State. In his policy statement, the Governor acknowledged the current problems in the Delta and the need for timely completion of environmental documentation for selection of a comprehensive Delta solution, and recognized the need to implement several currently planned SWP facilities. The SWP facilities specified were South Delta improvements, Kern Water Bank (KWB), and Los Banos Grandes Reservoir (LBG).

Implementation of a Delta water transfer solution and completion of the specific SWP facilities referred to by the Governor would significantly increase SWP water supplies. These facilities would allow diversion and storage of additional water from the Delta for delivery to MWD and the other SWP contractors. It is expected that the first facilities to be completed would be the initial phase of the KWB's Kern Fan Element (KFE) and South Delta improvements, followed by completion of and a later phase of the KFE. Following completion of these facilities is the anticipated implementation of a Delta water transfer solution and completion of LBG. These facilities are anticipated to be complete by the year 2010.

Existing SWP facilities are estimated to provide an average-year supply to MWD of about 1.56 MAFY. This estimate is based on an MWD SWP demand of 1.8 MAF and standards proposed by the SWRCB in their Draft Water Rights Decision 1630, which is an approximation of constraints required for protection under the Endangered Species Act for winter-run salmon and Delta smelt. The additional SWP facilities described above are estimated to increase SWP supplies to MWD by an average of approximately 0.20 MAFY. Minimum-year supplies with existing SWP facilities are estimated to be 0.21 MAFY. The minimum-year increase in SWP supplies resulting from additional facilities is projected to be approximately 1.13 MAFY. Operation of the SWP under more restrictive standards and constraints than assumed in these studies result in reductions from the supplies indicated here, both with existing and additional SWP facilities.

3. WATER TRANSFER AND EXCHANGE PROGRAMS

California's agricultural activities consume approximately 27 MAFY or 83 percent of California's 32.5 MAFY of developed water supplies. Voluntary water transfers and exchanges can make a portion of this agricultural water supply available to support the State's urban economies.

Consistent with the Governor's April 1992 Water Policy Statement, voluntary water transfers and exchanges are a critical element for improving the water supply reliability within MWD's service area and accomplishing the reliability goal set by MWD's Board of Directors. MWD is vigorously pursuing a full-range of voluntary water transfer and exchange programs with state, federal, public and private water districts and individuals.

The enactment of the Federal Central Valley Project Improvement Act on October 30, 1992 represents a major breakthrough in California water policy and has significantly enhanced MWD's ability to transfer water from Central Valley Project (CVP) contractors. By removing restrictions which prevented the transfer of

CVP water supplies outside of its service areas and providing CVP water users the ability to directly transfer water, this act has substantially increased the amount of water available for water transfer and exchange programs.

Other provisions of the Central Valley Project Improvement Act provide for restoration and enhancement of fish, wildlife and related habitats in the Central Valley and Trinity Basins, assist in Bay-Delta protection efforts, and balance demands for CVP water among urban, agriculture and environmental demands. MWD is currently developing the following transfer and exchange projects.

a. Arvin-Edison/Metropolitan Water Storage and Exchange Program. This program involves storing up to 800,000 acre-feet (AF) of MWD's SWP supply in the groundwater basin underlying the Arvin-Edison Water Storage District (Arvin-Edison) which is located in the southern portion of the San Joaquin Valley. During shortage years, a portion of Arvin-Edison's federal CVP water would be delivered to MWD. In exchange, Arvin-Edison would serve its customers by pumping groundwater previously stored by MWD. As originally formulated, the program could increase MWD's dry-year supplies by approximately 93,000 AF per year (AFY). MWD's and Arvin-Edison's Board of Directors have approved an interim agreement for the storage of potential near-term surplus water. Actions taken under the endangered species act to protect winter-run salmon and Delta smelt as well as the allocation of CVP water for environmental purposes, has reduced the reliability of the CVP water to be delivered to MWD. As a result, MWD and Arvin-Edison are assessing alternative formulations of this program.

b. Semitropic/Metropolitan Water Storage and Exchange Program. This program would involve groundwater storage and recovery operations. Under the program, MWD would store water in the groundwater basin underlying the Semitropic Water Storage District (Semitropic) when MWD's water supplies are in excess of its demand. During shortage years, Semitropic would pump MWD's stored water supplies from the groundwater basin into the California Aqueduct through facilities owned and operated by Semitropic. A minimum pumpback of 40,000-60,000 AFY would be guaranteed. In addition, Semitropic has a contract for 158,000 AFY of Kern County Water Agency's SWP entitlement. Semitropic could exchange a portion of this entitlement water for MWD's stored water supplies, thereby substantially increasing the annual yield of the program. An initial agreement to store water in 1993 has been executed and approximately 45,000 AF of MWD's 1992 SWP carryover water was stored. Negotiations on a long-term agreement continue to progress. In July 1993 MWD and Semitropic initiated preparation of environmental documentation necessary to comply with the California Environmental Quality Act (CEQA).

c. Dudley Ridge/Metropolitan Water Transfer Program. MWD executed an agreement for an option to transfer in 1993 a portion of Dudley Ridge Water District's (Dudley Ridge) 57,700 AF SWP entitlement. Under the terms of the agreement, MWD agreed to purchase all SWP water made available by Dudley Ridge in 1993 if SWP deliveries for that year were less than 50 percent. In February 1993, DWR announced that SWP deliveries would exceed 50 percent. Therefore, MWD did not receive any water from Dudley Ridge in 1993 and does not have any obligation to purchase its SWP water. The long-term transfer program is currently being negotiated.

4. LOCAL MANAGEMENT STRATEGIES

a. Water Reclamation

Use of reclaimed water has grown nearly 160 percent in just six years. Presently, the largest use of reclaimed water in Southern California is for groundwater recharge. Reclaimed water can be injected into seawater intrusion barriers or percolated in spreading basins for eventual reuse in potable systems.

In October of 1990, MWD began work on a Water Reclamation Databank, a survey of the status of existing and proposed water reclamation projects in its service area. The Databank includes information on more than 40 new wastewater reuse projects which are in various stages of feasibility study, design, or construction. Under optimal conditions (i.e., successful completion of all proposed projects), existing and new wastewater treatment projects in the MWD service area could provide up to 675,000 AFY by 2010. The projections for expansion of wastewater reuse are subject to several constraints that will be discussed in Section E.

b. Groundwater Management Programs

Conjunctive use of surface water and groundwater basins has been a local management practice since the 1950s. Conjunctive use refers to both storage of surface water in available groundwater basin storage space and increased pumping from basins in order to create storage space. A groundwater basin is recharged with storm waters and imported surface water during the winter months or wet years when supplies exceed demands. When surface water is in shortage during dry periods, stored water is extracted from the basins to meet peak water demands.

Currently, the Seasonal Storage Program is MWD's basic conjunctive use program. The current Seasonal Storage Program was instituted in fiscal year 1989-90 to consolidate several programs designed to encourage conjunctive use. Seasonal storage service is generally available between October 1 and April 30, whenever and so long as MWD determines that water and system capacity are available, and at other times of the year at MWD's discretion. Under this program, member agencies are encouraged to take delivery of imported MWD supplies through a discounted water rate. Member agencies can store this water for use in the summer months to offset peak water demands on imported supplies, or water can be stored for use in later years. Since 1989, member agencies have purchased more than 600,000 AF of water under the Seasonal Storage Program. The economic incentive offered by MWD allows local agencies to invest in new water production, storage, and treatment facilities. Some examples of investments and innovative water management as a result of the program can be found in: storage arrangements in the Raymond groundwater basin, new wells constructed in the San Fernando Basin by the City of Los Angeles, a low-interest loan program offered by Orange County Water District for construction of new wells in Orange County, and amendments to Central and West Coast Basin judgements to increase carryover storage from 10 to 20 percent of extraction rights in a given year.

Expansion of the conjunctive use program continues to be a high priority for increasing water supplies in drought years and reducing peak period demands on importation facilities. MWD, in cooperation with several member agencies, is evaluating the expansion of existing conjunctive use projects in the Chino, San Gabriel, and San Jacinto groundwater basins. The success of these projects depends on the availability, in some years, of imported water above consumptive needs. This surplus water would be recharged and stored

in local groundwater basins, to be withdrawn in years of shortfall. Conjunctive use also includes exchanging entitlement to stored groundwater for imported water, thus leaving the groundwater in storage for later use.

In the Chino Basin, MWD has a cyclic storage program which can deliver up to 100,000 AFY of imported water for groundwater replenishment and storage for subsequent use during shortfalls. Chino Basin has also been used for groundwater/import water exchanges amounting to 43,000 AFY. During the 1987-1992 drought period 111,000 AF was withdrawn and sold for local use from these cyclic and exchange accounts.

Currently, MWD is negotiating provisions for a new 50,000 AFY conjunctive use demonstration project which would store imported water in the Chino Basin through spreading, exchange, and injection operations. This project would allow MWD to store imported water during periods of availability and subsequently pump up to 30,000 AFY into its distribution system to improve regional water service reliability during droughts and peak demand periods.

MWD currently has two contracts with the Main San Gabriel Basin Watermaster for cyclic storage of up to 167,000 AFY of imported water for subsequent transfer to two member agencies, the Upper San Gabriel Valley Municipal Water District and Three Valleys Municipal Water District. Over the 1987-92 drought about 129,000 AF of water was withdrawn and sold for local use from this cyclic storage program.

Additionally, MWD is negotiating development of a large conjunctive use project which would be compatible with the U.S. Environmental Protection Agency's Superfund cleanup program for the basin. The conjunctive use program would consist of a well field and groundwater treatment plant in the Baldwin Park area to pump and recover groundwater that is presently contaminated. The program could provide up to 150,000 AF of storage and up to 30,000 AFY of supply during drought periods. Up to 25 percent of the cost to design, plan, and construct the conjunctive use facility will be funded by the Department of the Interior under Section 1614 of the Reclamation Projects Authorization and Adjustment Act of 1992 (H.R. 429).

Under a pilot demonstration project with Eastern Municipal Water District of Riverside County (Eastern), MWD stored about 2,000 AFY of imported water by spreading its SWP water for the first time in 1990 in the San Jacinto Basin. Eastern recently purchased that water to supplement its drought supply and is planning to store additional imported water in the basin. Additionally, a local pumpers association has been formed to maximize the use of the local San Jacinto and Hemet Basins.

c. Groundwater Recovery

Groundwater quality data from the period of 1974 to 1989, shows that almost half of the local groundwater wells exceeded at least one primary or secondary drinking water standard. Major regional groundwater problems include the following:

- Nitrate concentrations.
- Total dissolved solids (TDS).
- Volatile organic compounds (VOC).

In general, groundwater contamination is increasing as the long lasting residual impacts of industrial, dairy, agricultural, and municipal activities spread. Thus, at the same time that groundwater basins are being more intensively used to meet increasing water demands, this critical resource will be increasingly stressed due to historical and current waste disposal practices and resulting contamination.

Because of this growing concern, MWD and other water utilities have undertaken a large scale program to improve regional water supply reliability through reclamation of groundwater degraded by minerals and other contaminants. Under its Groundwater Recovery Program, MWD will provide financial assistance to local agencies of up to \$250 per acre-foot to recover contaminated groundwater for potable use. Approximately 40 projects at a cost to MWD of about \$30 million per year are expected to be operational by the year 2005.

The Groundwater Recovery Program is expected to recover 200,000 AFY. However, approximately 100,000 AF of this ultimate annual production will be untapped local yield or new supplies. The remainder will require replenishment from imported supplies and reclaimed water sources to avoid basin overdraft. The region will benefit from the projects requiring replenishment through a conjunctive use concept. In order to participate, each project must have sufficient storage reserves to sustain production during a three-year drought without receiving replenishment service from MWD.

d. Surface Water Management

Final design and land acquisition for the Domenigoni Valley Reservoir project are currently underway. The Reservoir will be located in western Riverside County south of Hemet. The project, in combination with comprehensive groundwater management, will do the following:

- Maximize groundwater storage by regulating the flow of imported water used for conjunctive use programs.
- Provide emergency water reserves for use following facility damage resulting from major seismic events or other natural disasters.
- Provide supplies to reduce water shortages during droughts.
- Meet seasonal operating requirements, including seasonal peak demands.
- Preserve the operating reliability of MWD's distribution system.

The project, together with groundwater storage, is intended to provide two years of drought or carryover storage for meeting demands above normal projections.

e. Desalination

MWD has participated in several studies to evaluate the feasibility of seawater desalination and is pursuing the development of seawater desalination technologies. As a result of these studies, the San Diego County Water Authority (SDCWA) is completing a detailed study of the potential for constructing a reverse osmosis desalination facility as part of the South Bay Power Plant Repowerings Project. The plant could provide up to 92 AF per day.

Desalination is one of the only options available for providing adequate water supplies to coastal islands, such as Santa Catalina. In conjunction with the Santa Catalina Island Company, the city of Avalon has developed a desalination plant which converts 30 percent of the sea water entering the plant into fresh water. The 132,000 gallons of desalinated water per day translates into almost one-third of the island's annual water consumption. Currently, the desalination plant is not in operation as a result of sufficient water supply on the island.

MWD is currently planning to build, operate and test a seawater desalination plant to provide a means for conducting research and development of advanced desalination processes. The demonstration plant would employ multi-effect distillation technologies to process 5 MGD (5,600 AFY) of seawater using heat from an existing adjacent coastal power plant. The results from the demonstration project could be used to assess the viability of a full scale desalination plant with a capacity of 50 to 100 MGD (56,000 to 112,000 AFY). A full scale desalination project can only feasibly be built in conjunction with renovation of coastal power plants scheduled around the year 2000. In addition, MWD along with the City of Long Beach, Central Basin MWD, West Basin MWD, and Southern California Edison (SCE) are currently completing feasibility studies on a 5 MGD seawater desalination plant at the SCE Alamitos generation station.

5. MANAGEMENT RESPONSE DURING DROUGHT OR OTHER EMERGENCIES

Effective management of water supply deficiencies is one of the most important responsibilities of regional water agencies. Possible deficiencies in supply can be caused by; droughts, failures of major water transmission facilities during earthquakes, an acute contamination of supplies due to chemical spills, or other adverse conditions. Management response programs were initially developed during the drought of 1976-1977 and have been expanded and refined over the past six years. Management techniques include provisions for increasing supply and for reducing demand.

During the drought of 1976-1977, MWD was able to divert Colorado River water to the full capacity of its pumping facilities. As a result, it was able to release 320,000 AF of SWP water for use elsewhere in the State.

In order to cope with the water supply shortfall beginning in 1991 and ending in June 1992, MWD adopted an Incremental Interruption and Conservation Plan (IICP). The IICP was designed to encourage member agencies to utilize water held in local groundwater and surface water storage reserves and promote consumer water conservation to reduce demands on imported sources during droughts. Each member agency was assigned a monthly target quantity of water and an annual discretionary pool based on the total amount of water which the agency purchased from MWD in 1989-90. The monthly target was established using "firm service" (that is, excluding agricultural and seawater barrier uses). Proportional reductions were then applied to each category ("firm" and "nonfirm"), with the proportions determined by which stage of the IICP was in effect. Changes to the target quantity was based on population growth, changes in local water supplies, conservation implementation, and reclamation. Excess use beyond the target quantity resulted in a surcharge for the excess quantity at double the base rate. During the operation of the IICP, almost all member agencies met their assigned targets. The overall success of the IICP is being reviewed by MWD.

E. POTENTIAL WATER ISSUES

In order to meet the future water demands of this region, the Water Resources Element identifies and addresses a number of key issues that are related to future development of water supplies.

1. GROWTH MANAGEMENT

a. Issue:

What is the relationship between growth management and water supply?

Background:

Growth related decisions have historically been addressed by local governments. Accommodating this growth and meeting all reasonable needs has been the expressed purpose of most water agencies. The three primary means of meeting water needs has been through:

- Planning based on future water requirement projections.
- Identifying various existing and adequate sources of supply.
- Providing facilities for transmission, treatment, storage, and distribution.

In the 1980s, water demand increased significantly in proportion to tremendous population growth. Coinciding with this growth, huge capital costs and a lengthy regulatory process of facility expansion made large scale projects increasingly difficult to accomplish. In addition, supply sources became less reliable, due to water quality and environmental concerns, especially during the drought period of 1987-91. Consequently, both general purpose government and water utilities have been confronted with the issue of supplying adequate amounts of water and how it relates to growth management concerns.

Public water agencies and other special districts do not have statutory or constitutional power to regulate land use. Water districts can only restrict service for utility related purposes, and must make certain that such restrictions will not burden existing users.⁹ But, due to the decisions of recent court cases, general purpose governments can use service restrictions to implement land use decisions under the police power granted by Article XI of the State Constitution.

The city of Santa Barbara is an example of a local government using their police power to maintain levels of water demand in the form of growth management controls to stem growth pressure from the sprawling edges of Los Angeles, and Ventura counties. Although there were plans to meet growing local needs by tapping new water sources, the residents of Santa Barbara resisted plans to connect the city to the SWP for years. The rationale for not connecting with the SWP, was that by agreeing to provide water, they would be promoting uncontrolled urban growth. Despite efforts to limit the availability of water supplies, growth continued in the city of Santa Barbara. In 1991, after long drought years, and strict use regulation, the residents voted to construct a desalination plant and connect to the SWP.

Water supply and urban growth are linked issues and are best addressed by greater coordination and communication between water agencies, land use agencies and general purpose governments. Consequently, MWD relies on SCAG and SANDAG for growth projections for its service area to determine future water demands and facility needs. To further integrate the regional planning effort, MWD is preparing this Water Resources Element and assisting SCAG to develop mitigation measures for water supply development for the RCP master environmental assessment and environmental impact report.

The goal of the MWD water management program has been to maximize efficient use of existing supplies and to assure adequate supplies to meet future water demand.* Due to the rapid growth of Southern California, meeting the growing demand for water has been an ongoing challenge. In addition, a number of concerns have been raised about how to efficiently prioritize and integrate infrastructure investment to support California's pending population growth and to provide a strong economic base. As a result, MWD's Board of Directors has adopted the following policy principles related to growth management."

1. Water supply is not a reason in and of itself to limit or control growth in California. There are sufficient water resources to accommodate continued population and economic growth through better management, including conservation, voluntary transfers and additional storage and conveyance facilities. Water supply for urban, agricultural and environmental uses will be adequate and reliable.
2. Growth management and the allocation and direction of development should be the responsibility of general purpose government. Utilities, including water purveyors, should provide adequate facilities to serve the projected growth at the state, regional and local levels.
3. For planning and infrastructure purposes, water supply should be treated as a utility not required to be a general purpose government plan element. However, water purveyors at the state, regional and local levels should be members of any proposed infrastructure planning structure to ensure optimum coordination and infrastructure resources investment.
4. Financing mechanisms should be developed for general purpose and special district governments to develop adequate facilities to serve the projected growth.
5. Infrastructure financing programs should provide for new growth to pay a "fair-share" relative to the total infrastructure program.
6. At the local level, water districts that participate in the coordinated development of a comprehensive plan, and demonstrate infrastructure needs to accommodate the local growth management plan, should be eligible for funding from any infrastructure pool or bank that is established to fund local infrastructure.

7. Market mechanisms to improve the efficiency in use of natural resources and public facilities such as water transfers should be encouraged.

b. Planning Strategy:

The MWD service area has a long history of economic and population growth. MWD is committed to continuing to accommodate population growth and to remain consistent with regional growth management plans, without becoming a major growth inducing force. One important aspect of meeting that challenge is close coordination with SCAG and SANDAG. MWD intends to continue to use growth projections developed by these agencies as the basis for its planning activities and to work with them to identify appropriate water supply mitigation measures for inclusion in regional growth management plans.

MWD and its member agencies are undergoing an Integrated Resources Planning (IRP) process. The IRP process will identify an appropriate resource mix that is regionally affordable and provides a reliable water supply to both areas of new growth and established communities - consistent with the growth management population projections. MWD will also be preparing a Long Range Finance Plan, which is linked to the IRP, that will identify a rate structure that assures that growth (new system demand) pays its fair share of the costs associated with providing expanded service and reliability.

2. WATER TRANSFER POLICIES

a. Issue:

What role will water transfers (also known as water marketing) take in the future to respond to the water needs of urban, agricultural and environmental users - statewide and in Southern California?

Background:

Although the concept of water transfers was developed over 10 years ago, the recent water shortages brought about by a drought period has made California increasingly interested in water transfers as an expedient means of alleviating these shortages. In April 1992, Governor Pete Wilson announced a Statewide Water Policy, which encouraged legislation proposing voluntary, environmentally safe transfers. The policy defines a transfer as the acquisition of short- or long-term supplies, agreements with water districts and individuals, and initiatives which involve management and market transactions for the purchase of water, water rights or land to increase supply. The debate has been extensive among politicians, economists, urban water users, environmentalists, and farmers who are all looking for ways to resolve the widening gap between available water supplies and increasing demand.

Currently there are institutional and physical limits to water transfers. Several proposals are being debated in the legislature that could affect the price and availability of water transfers. One of the most significant legislative actions regarding water transfer is the recent passage of the Federal Central Valley Project Improvement Act. The availability of water to users or districts outside the Central Valley Project is at the crux of determining an approach to large-scale water transfers. Most major water transfer activities within

the state will involve participation and cooperation of the State Water Project and/or the Central Valley Project as facilitators and wheelers of the transferred water to the receiving agency. Due to the recent severe drought period (1989 - 1992), the prevailing attitude has changed from how to establish these markets, to what type of water transfer system should be developed. Some of the key issues with the development of this system include:

- Determining whether or not further facilities in the Sacramento-San Joaquin Delta would be necessary to support water transfers.
- Mitigating environmental needs and concerns which may be caused by direct transfers.
- Developing a means to address potential loss of income to third-party concerns. This would include; agricultural suppliers, farm workers, non-agricultural business, and fallout social and economic effects on rural communities dependent on agriculture.
- Defining the level of involvement the state and local government should have in the transfer system.
- Determining what power an irrigation or urban water district should have over a transfer initiated by a member.

These issues continue to be addressed in debates, local meetings, and state sessions. Perhaps the most useful policy tool is the, "Interim Guidelines for Implementation of the Water Transfer Provisions of the Central Valley Project Improvement Act" (Title XXXIV of Public Law 102-575). The most recent revision (dated February 19, 1993) of the stated objective is to:

"...address all water transfers equitably, to provide for a more efficient and effective use of the water supply developed by the Central Valley Project, and to provide greater flexibility to water users in transferring water developed by the project."

As the discussion deepens, there are many other issues of concern to this topic. For the most part, the current status is summarized in a statement made by Secretary of the Interior, Bruce Babbitt, "The issue is devising and creating a reasonable reallocation system. It won't be easy."^a In December, 1991 MWD's Board of Directors adopted a "Water Transfer Policy Statement" (Policy), (Metropolitan Administrative Code Section 4203) to guide MWD water transfer activities.

In summary, the Policy states that the combined factors of continued population and economic growth and reductions in traditional water supply sources will require MWD to pursue additional supplemental water supplies to ensure the continued health of the Southern California economy. The Policy recognizes that water transfers from agricultural to urban uses will be a critical and necessary element of a comprehensive management plan that includes water conservation, reclamation and reuse, and infrastructure improvements. The Policy provides that MWD will vigorously pursue a wide range of voluntary transfer activities including fallowing of agricultural lands and transfers initiated by water rights holders. The Policy provides that such transfers will be designed to protect and where feasible,

enhance environmental and groundwater resources. Finally, the Policy provides that efforts continue to develop for water transfers which seek to avoid unreasonable operational and financial impacts in the agricultural community.

Planning Strategy:

Water transfers will be an integral aspect of water supply in the future, as new water sources become more difficult and expensive to develop. It is therefore imperative that the most equitable system of transfers be developed so that agricultural uses do not literally get "bought-out" by the urban uses and that MWD maintain its commitment to developing transfers with willing partners.

3. WATER SUPPLY DEVELOPMENT AND ENVIRONMENTAL REGULATIONS

Issue Statement:

What strategies can water agencies take for future development of water supplies and facilities in view of increasingly stringent environmental regulations?

Background:

Continual development of water supplies and facilities to transport, treat and store water is necessary to support the growing population and economic base of Southern California. On the other hand, increasingly stringent environmental regulations have, and will continue to have, impacts on development of the needed supplies and facilities. Strategies that will integrate environmental values and meet environmental regulations are essential for developing appropriate water supplies and maintaining the quality of life of the region.

MWD recognizes that environmental responsibility is an essential component of developing and operating a reliable water supply for Southern California. Together with public support, responsiveness to environmental issues is an essential element of any project or program undertaken in the State.

MWD also recognizes the need to be proactive in its approach to environmental needs and requirements, taking a leadership role, where possible, in the acceptable resolution of environmental issues affecting water in California. Significant environmental challenges remain to be resolved in the Delta and in the service area.

An example of such a proactive approach is the Central Valley Project Improvement Act. It establishes an explicit, competing right of the natural environment. Together with the needs of urban and agricultural users, environmental needs for available water supply will combine to challenge the ingenuity and creativity of MWD, its member agencies and all water users (urban, agricultural, and environmental) in the state and region in the fulfillment of their commitment to stewardship.

Another example of a proactive stance on environmental issues is MWD's strategy in the development of the Domenigoni Valley Reservoir project to the south of the city of Hemet. MWD signed an agreement with wildlife agencies to establish a "Multi-species Habitat Conservation Plan for Southwestern Riverside County" to protect sensitive species of plants and wildlife near the site of the reservoir. The signatories of the agreement include the U.S. Fish and Wildlife Service, California Department of Fish and Game, Riverside

County Habitat Conservation Agency, and Riverside County Regional Parks and Open Space District. With this conservation plan, there will be a total of nearly 20,000 contiguous acres of publicly owned open space extending from the Domenigoni Valley reservoir through the Shipley Reserve to MWD's Lake Skinner. As a result, the project had little to no dissent from environmentalists, state and federal regulatory agencies, local governments and nearby tribal councils.

In addition, MWD has also established biodiversity management at two areas in Riverside County to mitigate impacts of the Domenigoni Valley reservoir and anticipated facility developments in western Riverside County. MWD, in partnership with the California Department of Fish and Game, Riverside County and the Nature Conservancy established the 9,000 acre, "Santa Rosa Plateau Mitigation Bank" preserve. The other area is a 5,000 acre "Lake Mathews Multi-species Habitat Conservation Plan". MWD is currently pursuing similar plans in southern Orange County and San Bernardino County.

Metropolitan's member agencies have also adopted environmental values and considerations in their water supply development strategies. Some examples are the West Basin Recycling Project in the South Bay area of Los Angeles County and Eastern Municipal Water District's wetlands enhancement program using reclaimed water in Riverside County. Both projects have received statewide and national recognition for their environmental benefits.

Planning Strategy:

MWD integrates environmental values in its decision making procedure for water resources and facilities development. Environmental needs for available water supply and the protection of endangered species and their habitats offer a significant challenge to MWD and its member agencies to develop effective physical, institutional, and management solutions that lead to "win-win-win" outcomes for the environment, agricultural, and urban users. MWD intends to apply the same level of creativity and innovation to the development of effective environmental strategies that it has demonstrated in the development and implementation of large scale regional infrastructure projects.

Federal and state environmental laws place the burden of proof on MWD to show that its proposed projects do not have significant adverse impacts on the environment. MWD has demonstrated and will continue to demonstrate its commitment to full compliance with environmental standards and to the implementation of measures needed to mitigate impacts.

4. DESALINATION

a. Issue:

How could desalination contribute to future water supply?

Background:

Desalination has intrigued engineers, politicians, and the public for years because of the tremendous possibility it offers as a means to increase water supply. Unfortunately, the large energy requirements of the current technology make the process too costly to implement, relative to imported supplies and more

conventional local water supply development. Throughout the world however, desalination is an important source of usable water and accounts for more than three billion gallons per day from 3,500 plants.^a Extensive research has developed ways to extract high percentages of inorganic and organic constituents from brackish groundwater and sea water.

Of the various desalination methods, the membrane processes (reverse osmosis and electrodialysis) offer the best potential to increase supply, especially by desalting brackish ground water. However, existence of high concentration of nitrate in local groundwater has promoted an increased effort to achieve new and more efficient membranes. The reverse osmosis method can also desalt domestic waste water which can then be injected into the local groundwater basin, and industrial discharge can be treated to reduce waste water and reused to supplement process water supplies. At the Diablo Canyon Power Plant, sea water is used in a reverse osmosis plant to provide water for on site power production. Local efforts in Southern California to desalt brackish groundwater and ocean water are being implemented and studied by MWD. Please refer to Section V, for a more detailed description of various efforts by MWD to utilize desalination programs and projects. In addition, research continues to study the disposal of brackish agricultural drainage. Although the drainage water contains toxic elements, it can be reclaimed through reverse osmosis.

In spite of the great potential desalination has to offer to the existing water supply, there are a number of issues which need to be addressed in order for its full success. These issues include the following:

(i) *Regulatory and Institutional.* The two primary issues related to the regulation of desalinated water quality include the level of salinity and related chemical constituents in the product water and the disposal of brine. Both the U. S. Environmental Protection Agency and the California Department of Health Services require that all brackish ground water or seawater desalination projects producing water for municipal water supply purposes meet all drinking water regulations. In addition, no brine discharge is allowed in any inland waterway. Seawater brine disposal is an issue being dealt with by Regional Water Quality Control Boards. This issue focuses on the dilution of the brine discharge and the potential impacts on the ocean biota.

(ii) *Technical Constraints.* Current desalination processes are generally divided into four categories by water and process type: Brackish-Thermal, Brackish-Non-thermal, Seawater-Thermal, and Seawater-Non-thermal. The measure of source water is based on total dissolved solids (TDS) content and ranges from 500 mg/l for brackish to 50,000 mg/l for seawater. Among the various types of desalination processes, energy consumption accounts for a significant portion of operation and maintenance costs. Intake and pre-treatment is a function of the source water and desalination process. Most thermal processes require less pre-treatment than non-thermal processes. The methods for brine disposal are critical to limiting impacts on local ground and surface water. For brine disposal, existing outfall facilities must be used because of the time, cost, and permit difficulties of constructing new ones. Interfacing with existing electric power plants along the California coastal zone is an opportunity for locating desalination plants. By operating jointly, cost savings may be realized by both plants. Other constraints include: corrosiveness of treated water in the system and the retrofitting of existing distribution systems to incorporate desalination facilities.

(iii) *Economics.* The costs associated with desalination are related to the source water quality, the desired product water quality, the treatment process, the installed capacity and the method of brine disposal. The total cost for desalination of brackish water ranges from \$350-1,000/acre-ft. Seawater ranges in cost from \$1,300-2,400/acre-ft. These costs do not reflect the cost of pumping water back into the distribution system. In addition to operating costs, the capital investment to build desalination facilities adds to the unit cost of producing water.

(iv) *Environmental Issues.* Among the various impacts to the environment associated with desalination plants are: construction disturbances, emissions, and interference; energy consumption and possible new power facilities, which may produce air emissions; biological resources effected by water source and brine disposal.

Planning Strategy:

The potential for use of desalted water may increase as the available water supply continues to decrease. Several key factors that relate to the issue of increasing use of desalination include: reducing cost of operation by coordinating facilities with coastal electric power plants, integrating and refitting the existing distribution system, and pursuing a comprehensive and regional approach to this issue. MWD is currently supporting brackish groundwater desalination through its Groundwater Recovery Program (See Section V). MWD is also actively supporting and participating in research efforts for ocean desalination technology.

5. CONSERVATION OF STORM RUNOFF

a. Issue:

How can conservation of storm runoff enhance the region's water supply?

Background:

Through a system of natural basins, gravel pits, control channels, dams, and pumping facilities, much of the water that is typically headed for the sea can be retained for the replenishment of groundwater. Because of the specific geography and geology of the Los Angeles Basin, surrounding mountains release large amount of water during heavy rain periods. Prior to the creation of a network of flood control works in the early 1900s this region was prone to catastrophic floods."

The development of the dams and flood control facilities led to a major program of artificially recharging the groundwater aquifers by spreading storm runoff and reclaimed wastewater at spreading basins and gravel pits. Spreading facilities are located throughout the region along main water paths and tributaries. The diversion and over flow of water into these spreading grounds resulting from storms is the objective of the artificial recharge program. Once water accumulates in the spreading areas it can percolate into the underground aquifers. This process contributes to the groundwater supply throughout the region. The three major river systems in SCAG's region and the MWD service area are the San Gabriel River,

the Santa Ana River, and the Los Angeles River. The three rivers have different conservation rates and efforts as described below.

1. The San Gabriel Watershed is operating at approximately an 80 percent conservation rate (conservation of storm runoff). This high rate of conservation is due to excellent geology for spreading and percolation of runoff water. Extensive facilities include a series of dams in the San Gabriel Canyon, San Gabriel River spreading and recharge facilities, and the Montebello Forebay facilities. This system recharges between 200,000 to 250,000 acre-feet per year of water. During very wet years, such as 1992-93, nearly 400,000 acre-feet reached the spreading basin system.* The system is operated by the Los Angeles County Department of Public Works.
2. Orange County has a high rate of conserving runoff water in the Santa Ana River due to an extensive system of collecting basins, off-river diverting channels, debris management (to scrape basins), and pervious riverbed for recharge. The Santa Ana Watershed has nearly a 95 percent conservation rate for runoff water and is operated by the Orange County Water District. The network of Santa Ana 'Lakes' or basins lead to a final basin which is equipped with a pump back system to recycle remaining runoff into the network.
3. The Los Angeles River Watershed is operating at approximately a 10 percent conservation rate. This lower rate of conservation is due to a lack of spreading facilities. All of the recharge facilities are located in the San Fernando Valley and are operated by LADWP. The remaining length of the Los Angeles River south of the San Fernando Valley is lined and therefore does not permit percolation. Total normal runoff into the ocean is about 236,000 acre-feet per year.
4. Surface water conservation is practiced along the Santa Clara River in Ventura County and the Santa Margarita - San Luis Rey watershed in the Riverside and San Diego Counties. The United Water Conservation District, through its Vern Freeman Diversion Project, can direct up to 133,000 AF in wet years for groundwater recharge. The Santa Margarita - San Luis Rey Watershed Planning Agency is a joint power composed of water and wastewater agencies that manage the streams and groundwater basins in the watershed.

In addition, the U.S. Army Corps of Engineers, in cooperation with the Los Angeles County Department of Public Works has initiated the Los Angeles County Drainage Area Water Conservation and Supply Reconnaissance Study to identify potential alternatives to capture stormwater runoff, and increase the water supply through modifications to the existing Los Angeles County Drainage Area System. The preliminary study will determine whether economic, hydrological, engineering, environmental, and current-use considerations are sufficiently favorable to recommend proceeding to a feasibility phase investigation.

In the future, continued and increased conservation efforts depend on several factors. Major debris management, or scrape programs, are needed to keep percolation at existing recharge basins at optimum levels. It is also important to protect recharge areas from potential contaminants in urban runoff. Large

scale approaches to conservation have been proposed by the Los Angeles County Department of Public Works to address the lost runoff from the Los Angeles River watershed. The creation of a fresh water harbor at the mouth of the river, in Long Beach Port, has been proposed as means of capturing 60,000 to 200,000 acre-feet per year.”

Planning Strategy:

It is imperative to maintain existing recharge basins in the San Gabriel and Santa Ana river systems at optimum percolation rates with debris management programs and prevent potential contamination of groundwater from urban runoff into recharge areas. Due to a majority of the water from the Los Angeles River being lost to the ocean, different alternatives have been developed for capturing more of the Los Angeles River’s runoff. Specific projects which would afford an increase in storm runoff capture are to develop a portion of the Long Beach Harbor (beyond the mouth of the Los Angeles River) into a freshwater detention basin to hold the water and to develop a tunnel to channel the water to a nearby groundwater recharge facility. Furthermore, maximizing use of existing dams and reservoirs capacities could increase groundwater recharge.

6. POTENTIAL FOR INCREASES IN THE USE OF RECLAIMED WATER

a.Issue:

What is the potential of increasing the use of reclaimed water?

Description:

Reclaimed water has been used as a nonpotable water supply source in California since the early 1960s. As discussed in Section III, about 250,000 AFY of reclaimed water is currently used within MWD’s service area and 675,000 AFY is expected to be developed by the year 2010. Over half of the existing and projected reclaimed water is used for recharging groundwater basins. The second largest current use is golf course and greenbelt irrigation, with the remainder used for industrial purposes.

Although reclaimed water use has increased significantly since the mid-1970s, there are still factors which stand in the way of greater use. The issues of constraint to reclaimed water use were examined in a plan prepared by the joint effort of the State Water Conservation Coalition’s Reclamation/Reuse Task Force and the Bay Delta Reclamation Sub-work Group. Their plan, “Water Recycling 2000: California’s Plan for the Future,” was prepared in September 1991. As part of the plan, a survey was conducted to identify the key factors which limit their ability to construct reclamation facilities. The major factors included:

(i) *Funding.* The survey indicated that funding is a significant barrier to developing reuse. The lack of an extensive infrastructure to deliver reclaimed water from the source to customers tends to increase the price of using reclaimed water above the fresh-water alternative. This disparity should lessen as the cost of finding new fresh water sources increases. Furthermore, the current availability of funds to construct reclamation facilities is scarce, and will need to be increased.

(ii) *Regulatory*. Some constraints come from policies, procedures, and other activities of regulatory agencies. Implementing a new reclamation project often involves approval from a number of regulatory agencies including the State Water Resources Control Board, Regional Water Quality Control Board, State Department of Health Services, and County Health Departments. Timely and consistent reviews are essential to maximize reclaimed water use.

(iii) *Institutional*. There is a need for interagency coordination to accomplish the development and implementation of reclaimed water facilities. The most common example on interagency coordination is where the wastewater management agency which produces the reclaimed water is not the water purveyor within the reuse area. Coordination and cooperation between both agencies is vital to the success of projects. In developing communities that desire to increase use of reclaimed water, communication and coordination among land use planning agencies, water reclamation agencies and water purveyors are key to maximize water reuse. Reclamation projects may also involve two or more cities or counties as either users or producers - again coordination is essential for efficient project development.

(iv) *Public acceptance*. It would be difficult for any local government or special district to site, finance, construct and operate a water reclamation project without public acceptance. Public acceptance is not a straightforward issue in that a variety of interest groups and community groups sometimes have conflicting interests. One group may support the use of reclaimed water, but object to the siting of the project in its community ("not in my backyard"). Health concerns of the public must also be addressed to increase public acceptance, particularly for potable reuse.

Planning Strategy:

Reclaimed water is a reliable water resource which can be used to augment existing supplies. "Water Recycling 2000" suggested that statewide water resources planning agencies and other state and federal agencies adopt policies that identify reclaimed water as a resource. Furthermore, the plan gives seventy recommendations to promote increased use of reclaimed water. Among them are:

Political Support. A need by policy makers at all levels of government to strongly commit to and support reclaimed water development. For example, the U.S. Bureau of Reclamation has initiated a three-year study of regional wastewater reuse opportunities in Southern California demonstrating that reclaimed water development is not just a local or regional issue.

Benefit Cost Analysis. A better understanding of who benefits and who pays for reclamation should be initiated from both a local and statewide perspective.

Funding Issues. Funding is considered the number one barrier to the use of reclaimed water; therefore, new funding sources (such as bonds, grants and loans), a new rate structure which encourages reclaimed water use, and provision of power to reclamation projects should be initiated. Federal cost-sharing would greatly encourage local reclaimed water development. An example of such cost-sharing is included under the Central Valley Improvement Act (H.R. 429 Title XVI (P.L. 102-575) where federal funds would be available for 25 percent of the construction costs of the West Basin Recycling Project, the City of Los Angeles' East Valley Project, and the San Diego Clean Water Program.

Regulatory Issues. Involvement, approval and support of state and local health departments, Regional Water Quality Control Boards and other related agencies will be crucial for the implementation of reclaimed water projects. Furthermore, establishment of a formal process to expedite reclamation projects will be helpful.

Public Acceptance. Public involvement in all stages of project development through citizen advisory committees, public workshops, education programs, and other environmental review processes would tremendously improve public acceptance. Education of the public on the safety of using reclaimed water will be necessary for increased use and acceptance of reclaimed water as a plausible potable resource.

F. CURRENT PLANNING PROCESS

The basic goal of MWD and its member agencies is to provide reliable water supplies to meet the water needs of its service area at the lowest possible cost. To achieve this goal, it is important to evaluate a diverse mix of resources that will balance costs, reliability, risks, environmental considerations, and other factors. MWD's service area has a wide range of resources and demand management strategies including: Colorado River Aqueduct supplies, State Water Project supplies, reclamation and reuse, groundwater conjunctive use and recovery, water conservation, desalination, development of surface storage facilities, etc., as described in previous chapters. Virtually all of these strategies and resources appear worthwhile when considered in isolation. However, implementation of all of these strategies would result in duplicated efforts, unnecessary costs, and unacceptable water rate increases. As a result, MWD and its member agencies are currently implementing an Integrated Resources Planning (IRP) process.

1. INTEGRATED RESOURCE PLANNING PROCESS

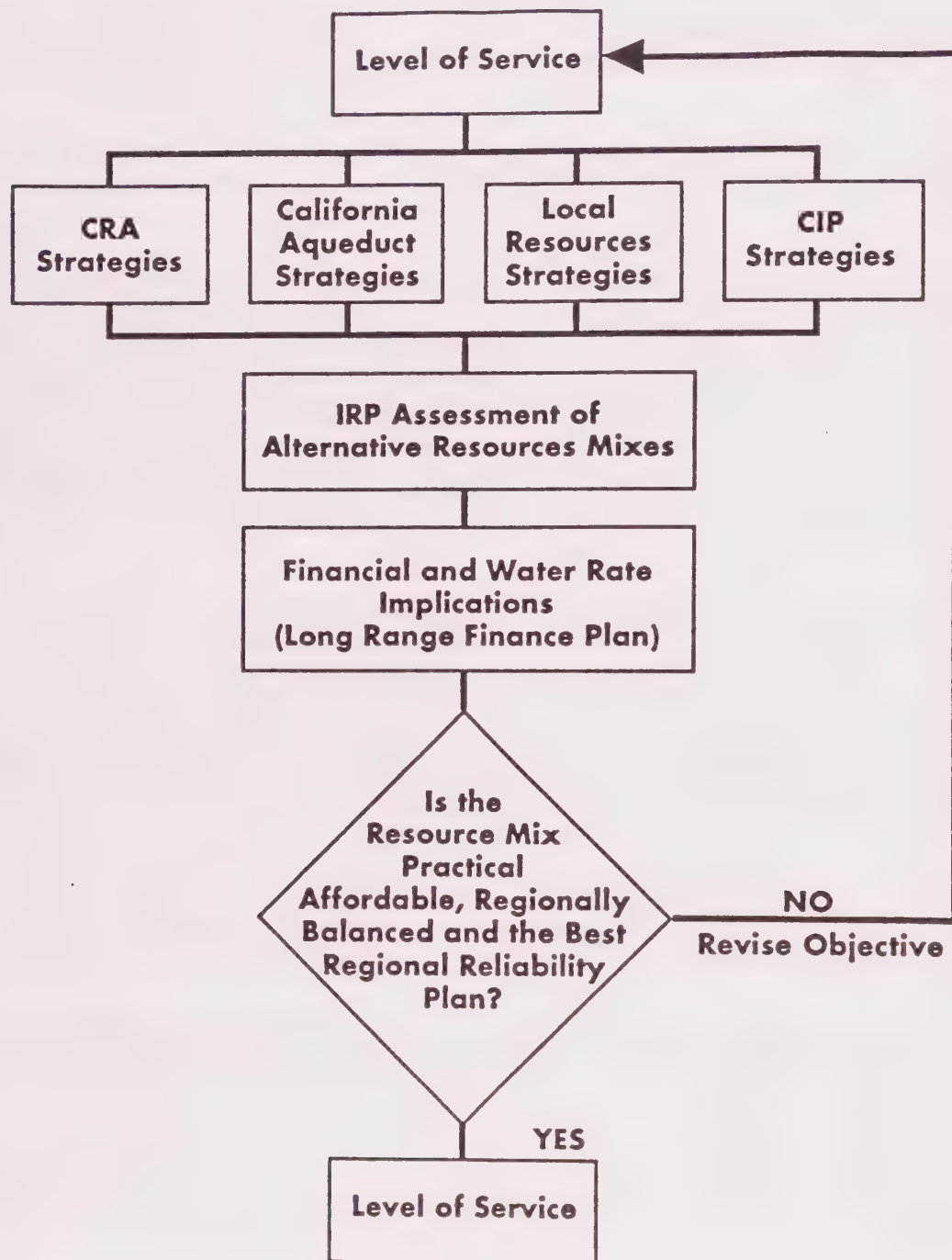
Integrated resource planning is a procedure to develop efficient and reliable resource supply plans to meet customer demands. Specifically, it calls for the appropriate mix of supply sources and demand management strategies to meet a stated reliability objective. IRP encompasses evaluation of water demands, least-cost analysis of supplies, an objective decision making process, evaluation of risk, and environmental, institutional, operational and financial concerns.

Although MWD has been following the logic of IRP in its water supply planning for many years, increasing financial constraints and environmental concerns requires a more rigorous evaluation of water resource development. The IRP process is shown graphically in Figure 10-6.

At the center of this planning process is the adoption of a quantified level of service (reliability) objective by the MWD Board of Directors. This reliability objective provides a specific and measurable performance goal

Figure 10-6

THE INTEGRATED RESOURCE PLANNING PROCESS



for MWD service. This objective provides a signal when additional water resources are required, and when additional expenditures would constitute an over-investment in reliability and unnecessary increase in water rates.

To achieve the specified reliability objective, the region can utilize a wide range of resource strategies — actions that could increase imported supplies, local water resources, or demand management efforts. These strategies fall into the four general categories — Colorado River Aqueduct supplies, California Aqueduct (State Water Project) deliveries, local water resources (including groundwater, local surface water, water conservation, water reclamation, and desalination), and capital improvement programs.

The next step in the IRP process is to compile and evaluate alternate resource mixes representing various levels of development of complementary resources. The evaluation process takes into consideration the variability and uncertainties associated with projected yield of each water resource and projected water demands. Evaluation criteria for alternate resource mixes include: ability to meet reliability goal, regional costs of development, potential risks, equity for MWD customers, environmental and institutional considerations, impact on local economy, and public acceptance.

The final step in the planning process is a careful examination of the financial implications of the resource alternative, and the determination of the rate increases required for its implementation. If MWD's Board of Directors determines that the preferred plan would not lead to unreasonable rate increases, then the resource alternative will be implemented with detailed planning steps, environmental documentation, and funding appropriations. If the resultant resource mix is deemed too expensive, then the reliability objective must be revised with appropriate modifications in the resource mix to reduce costs.

2. PLANNING SCHEDULE

MWD and its member agencies formally started the IRP process in June 1993. By October 1993, the work group had developed several alternate resources mixes for analysis and evaluation. The schedule calls for the determination of a "preferred mix" that meets the existing reliability objective and ranks highest with existing evaluation criteria by February 1994. The "planned mix" that reflects additional considerations and/or revised reliability objective is expected by July 1994.

The product of the IRP process will be a resource mix that will meet the desired reliability goal at least cost to the region with considerations to the environment, risks, and other criteria. This resource mix will become the guideline to demand-management strategies, water supply augmentation plans, and development of capital facilities.

Since July 1992 and prior to the formal initiation of the IRP process, Metropolitan and member agencies had been engaged in a Southern California Water Resources Strategic Assessment. The mission of the Strategic Assessment is to assess opportunities to optimize local water resources development. In 1993, the effort was expanded to the IRP process incorporating findings from the earlier study. In addition, concurrent to the IRP process, Metropolitan and its member agencies are reviewing Metropolitan's capital facility requirements through the Distribution System Overview Study. The IRP resource mix and associated costs, and costs for facility development, will also become the basis for MWD's Financial Structure Study and Long-Range Financial Plan.

G. WATER SUPPLY AND DEMAND OUTSIDE OF THE METROPOLITAN WATER DISTRICT

While the MWD serves a significant portion of the SCAG region, many of the communities within SCAG are served by water districts outside of the MWD service area. The water agencies outside of MWD, range from relatively small water suppliers, such as Littlerock Creek Irrigation District, which serves a small area of Northern Los Angeles County, to very large, primarily agricultural water suppliers, such as the Imperial Irrigation District, which provides water for the vast agricultural acreage in Imperial County. Many of these agencies face important supply and demand issues and will continue to face these issues as the region grows.

To reflect these agencies' concerns in the water resources chapter, SCAG conducted a water supply and demand survey of 14 such agencies. The survey collected information on projected water supply and demand in several sectors to the year 2020. In addition, SCAG solicited input from these agencies regarding their major concerns related to future water supply and demand. The results of this survey are summarized in this chapter.

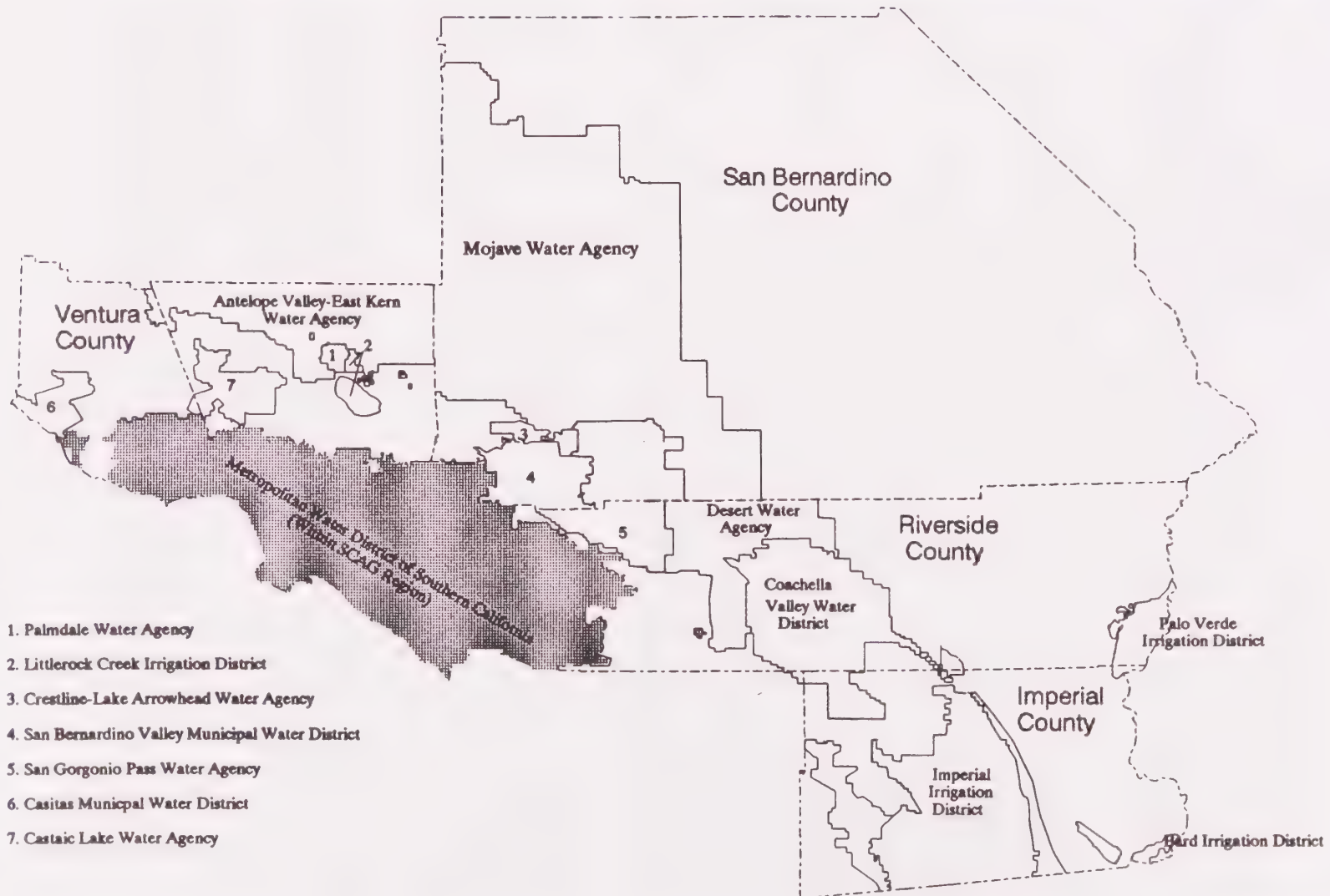
SCAG received input from the following water agencies whose approximate boundaries are marked on Figure 10-7: Antelope Valley-East Kern Water Agency, Bard Irrigation District, Casitas Municipal Water District, Coachella Valley Water District, Crestline-Lake Arrowhead Water Agency, Desert Water Agency, Imperial Irrigation District, Littlerock Creek Irrigation District, Mojave Water Agency, Palmdale Water District, Palo Verde Irrigation District, San Bernardino Municipal Water District and the San Geronio Pass Water Agency.

These agencies span a wide range in both size and in the type of community served. For example, of the primarily agricultural agencies, the Bard Irrigation District supplies approximately 7,600 acres of crops, while Imperial Irrigation provides water for 500,000 acres. Among the other agencies surveyed, Crestline-Lake Arrowhead has a relatively limited population and only one source of supply. San Bernardino Municipal Water District, on the other hand, encompasses 17 other agencies, relies on several water sources, and supplies one of the fastest growing urban regions in Southern California.

It is important to note that the completeness of the information received ranged considerably from agency to agency. Some agencies, particularly larger ones, have conducted more comprehensive planning efforts regarding projected supply and demand, while others have less information. Thus, it is difficult to draw conclusions from summaries of the data, particularly from the data in the more distant future years. However, the information does provide a general indication of supply and demand issues for many of the agencies. For future updates to the RCP, collecting projections of water supply and demand using growth projections consistent with the RCP's growth forecasts will be essential.

Figure 10-7

Water Agencies in the SCAG Region Outside Metropolitan Water District



Boundaries are Approximate.
 Map is Not to Scale.

1. WATER DEMAND IN THE NON-MWD AREA

Several factors contribute to the demand for water outside of the MWD service area, including population growth, extent of urbanization, agricultural acreage, and the cost of water. The non-MWD area will undergo significant populations increases in future years. Along with these population increases will be similar increases in households and businesses, all of which will be demanding more water.

The SCAG survey sent to the various water agencies requested historic information for 1990 and projections for the years 1995, 2000, 2010, and 2020 on service area population, urban water use irrigated acreage, and agricultural use (*see* Tables 10-11 through 10-15). The survey data show important changes in the type and amount of water that will be demanded over the planning period.

The most significant difference between the MWD and non-MWD service areas is the agricultural demand for water. While only 10 percent of all water use in the MWD area was for agricultural purposes in 1990, the agencies surveyed outside of the MWD service area reported that approximately 80 percent of the water was used for agriculture in the same year. A considerable portion of this agricultural water is used in the Imperial Valley and supplied by the Imperial Irrigation District. Supplying over 500,000 irrigated acres, the Imperial Irrigation District used almost 3 million acre-feet of water in 1990. Other significant agricultural suppliers include the Palo Verde Irrigation District, the Coachella Valley Water District, the Mojave Water District, and the Bard Irrigation Districts.

Urban water demand is currently greatest in Coachella Valley Water District, which serves the growing Coachella Valley area, and the San Bernardino Municipal Water Agency, which also serves a rapidly growing areas.

Although the completeness of the future projections is hampered by incomplete survey results, some general conclusions can be drawn. First, agricultural demand is not projected to increase over the planning period. For example, the Imperial Irrigation District projects no change in agricultural demand over this period. The Coachella Valley Water District projects a decrease in demand from 257,722 acre-feet in 1990 to 199,200 acre-feet in 2010. The San Bernardino Municipal Water Agency and the Mojave Water Agency also predict a decrease over this period.

Urban water use, however, is projected to increase significantly within many of the agencies over this period. Those agencies predicting significant increases in urban water demand include the Coachella Valley Water District, which projects an increase from 187,478 acre-feet in 1990 to 328,000 acre-feet in 2010. Other significant increases are projected in the San Bernardino Municipal Water Agency, the Mojave Water Agency, the Crestline-Lake Arrowhead Water Agency, and the Casitas Municipal Water District among others. These increases in demand reflect projected increases in population in many of the desert communities, such as the Coachella Valley. Overall, these increases in urban demand appear to overshadow any potential decreases in agricultural demand resulting in total increases in water demand over the planning period. Again, due to incomplete survey results, exact predictions of the total shift in demand cannot be made.

2. WATER SUPPLY IN THE NON-MWD AREA

With the exception of the Los Angeles Aqueducts, the sources of water outside of the MWD service area are the same as those inside the service area. They include the State Water Project, the Colorado River, local surface and groundwater, and reclaimed wastewater. The survey requested information from each agency on the 1990 and projected supply of water from each of these sources (*see* Tables 10-11 through 10-15). In addition, information on the 1990 and projected future overdraft was requested. Overdraft refers to groundwater extracted beyond the "safe yield" from a particular aquifer.

As indicated in the survey, five of the agencies rely on a single source of water. Three of the agricultural agencies, Bard, Palo Verde and the Imperial Irrigation District derive their supply exclusively from the Colorado River. The Crestline-Lake Arrowhead Water Agency, on the other hand is entirely dependent upon the State Water Project water, while the San Geronio Pass Water Agency only used groundwater in 1990. Most other agencies surveyed use multiple sources of supply.

The survey also shows how the reliance on a particular source or sources is anticipated to change over time. The San Geronio Pass Water Agency, for example, plans to supplement its existing groundwater supply with SWP and wastewater reclamation, which should give the agency greater flexibility to meet projected demand.

The agencies surveyed indicate that the proportion of water from any given source is anticipated to change over time. An increase in the use of SWP water is generally projected to account for increased demand, while the amount from other sources remains fairly constant or declines slightly. As stated previously, larger agencies have more comprehensive projections. Many agencies project an increase in the amount of reclaimed water. In 1990, only three agencies noted reclaimed water as a source of supply. By 2010, five agencies projected production of reclaimed water, and the quantities produced increased significantly.

Through the time period 1990-2020, five of the agencies acknowledge an overdraft situation exists or will exist from groundwater basins which are the principal source of supply. These same agencies are taking positive steps to develop or increase alternative sources of supply. Measures include connection with SWP and aggressive development of wastewater treatment for reclaimed water.

3. ISSUES AFFECTING WATER SUPPLY IN THE NON-MWD AREA

Local agencies and subregions have identified several current and future constraints to providing an adequate water supply. Several of these are similar to those identified in the MWD section of this component, while others are unique to the specific water provider. The major issues include:

a. The Reliability of Imported Sources

Concern over the reliability of imported sources of water is perhaps the major concern of non-MWD agencies. All but three of the agencies currently rely on imported water for the majority of their supply. In addition to direct water supply, many of these agencies also rely on imported water for groundwater recharge. Thus, future reliability of these sources is an important issue.

Table 10-11
Water Supply and Demand
Water Districts Outside MWD in SCAG Region-1990
(In acre-feet)

Agency	Population	SWP Water	Colorado River Water	Local Surface Water	Groundwater	Reclaimed Water	Overdraft	Total Water Supply*	Urban Water Use	Irrig. Acreage	Agric. Water Use	Total Water Demand
Antelope Valley and East Kern Water Agency	200,000	47,440	0	0	Not Avail.	Not Avail.	Not Avail.	Not Avail.	50,000	10,000	50,000	100,000
Bard Irrigation District	175	0	51,000	0	0	0	0	51,000	0	7,120	51,000	51,000
Casitas Municipal Water District	56,500	0	0	21,920	9,240	0	0	31,160	15,930	7,050	14,100	31,100**
Coachella Valley Water District	297,000	23,100	330,000	0	24,000	3,000	27,000	418,200	187,478	61,400	257,722	445,200
Crestline-Lake Arrowhead Water Agency	22,000	2,000	0	0	0	0	0	2,000	1,900	0	0	1,900
Desert Water Agency	66,000	38,100	0	4,000	8,900	3,000	0	54,000	51,000	0	3,000	54,000
Imperial Irrigation District	125,000	0	3,054,709	0	0	0	0	3,054,709	61,095	500,000	2,993,614	3,054,709
Little Rock Creek Irrigation District	2,900	0	0	600	3,000	0	0	3,600	1,000	250	1,125	2,125
Mojave Water Agency	292,800	2,000	0	0	73,300	11,900	83,000	87,200	126,800	17,500	140,900	267,700
Palmdale Water District	59,000	5,800	0	2,000	10,000	0	0	17,800	17,800	0	0	17,800
Palo Verde Irrigation District	Not Avail.	0	450,000	0	0	0	0	450,000	Not Avail.	93,000	450,000	450,000
San Bernardino Municipal Water District***	400,000	4,480	0	41,779	246,829	0	0	297,611	237,625	Not Avail.	61,985	299,610
San Geronimo Pass Water Agency	47,400	0	0	0	12,050	0	5,650	12,050	16,400	750	2,250	18,650

November 22, 1993

* Total Water Supply does not include overdraft.

** Includes unaccounted for water

*** Figures obtained from San Bernardino Valley Regional Water Facilities Master Plan: Camp Dresser and McKee

Table 10-12
Water Supply and Demand
Water Districts Outside MWD in SCAG Region-1995
(In acre-feet)

Agency	Population	SWP Water	Colorado River Water	Local Surface Water	Groundwater	Reclaimed Water	Overdraft	Total Water Supply*	Urban Water use	Irrig. Acreage	Agric. Water Use	Total Water Demand
Antelope Valley and East Kern Water Agency	220,000	138,400	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	55,000	Not Avail.	Not Avail.	Not Avail.
Bard Irrigation District	175	0	51,000	0	0	0	0	51,000	0	8,000	51,000	51,000
Casitas Municipal Water District	57,000	0	0	21,920	9,240	0	0	31,160	17,040	7,800	15,220	32,260**
Coachella Valley Water District	361,345	23,100	330,000	0	24,000	5,000	48,000	420,200	228,000	61,000	240,200	468,200
Crestline-Lake Arrowhead Water Agency	26,000	2,400	0	0	0	0	0	2,400	2,280	0	0	2,280
Desert Water Agency	70,000	38,100	0	4,000	11,000	6,500	3,900	59,600	55,500	0	6,500	62,000
Imperial Irrigation District	125,000	0	3,063,484	0	0	0	0	3,063,484	69,870	500,000	2,993,614	3,063,484
Little Rock Creek Irrigation District	3,700	2,300	0	600	3,000	0	0	5,900	1,200	200	900	2,100
Mojave Water Agency	358,500	50,800	0	0	73,300	5,800	Not Avail.	129,900	147,200	15,750	126,810	274,010
Palmdale Water District	72,000	8,500	0	2,000	10,000	0	0	20,500	20,500	0	0	20,500
Palo Verde Irrigation District	Not Avail.	0	450,000	0	0	0	0	450,000	Not Avail.	Not Avail.	Not Avail.	Not Avail.
San Bernardino Municipal Water District***	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	257,904	Not Avail.	51,424	309,328
San Geronimo Pass Water Agency	53,600	2,000	0	0	12,050	0	6,300	14,050	18,100	750	2,250	20,350

November 22, 1993

* Total water supply does not include overdraft.

** Includes unaccounted for water

*** Figures obtained from San Bernardino Valley Regional Water Facilities Master Plan: Camp Dresser and McKee

Table 10-13
Water Supply and Demand
Water Districts Outside MWD in SCAG Region-2000
(In acre-feet)

Agency	Population	SWP Water	Colorado River Water	Local Surface Water	Groundwater	Reclaimed Water	Overdraft	Total Water Supply*	Urban Water Use	Irrig. Acreage	Agrio. Water Use	Total Water Demand
Antelope Valley and East Kern Water Agency	245,000	138,400	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	61,250	Not Avail.	Not Avail.	Not Avail.
Bard Irrigation District	175	0	51,000	0	0	0	0	51,000	0	8,000	51,000	51,000
Casitas Municipal Water District	57,750	5,000	0	21,920	9,240	0	0	31,160	17,210	8,160	16,320	33,530**
Cochella Valley Water District	439,632	23,100	330,000	0	24,000	9,000	56,000	424,200	249,700	60,700	230,500	480,200
Crestline-Lake Arrowhead Water Agency	32,000	3,000	0	0	0	0	0	3,000	2,850	0	0	2,850
Desert Water Agency	92,000	38,100	0	4,000	11,000	10,000	6,900	63,100	60,000	0	10,000	70,000
Imperial Irrigation District	135,000	0	3,069,074	0	0	0	0	3,069,074	75,460	500,000	2,993,614	3,069,074
Littlerock Creek Irrigation District	4,500	2,300	0	600	3,000	0	0	5,900	1,400	150	675	2,075
Mojave Water Agency	421,000	50,800	0	0	73,300	6,200	Not Avail.	130,300	166,400	14,000	112,720	279,120
Palmdale Water District	88,000	12,300	0	2,000	10,000	0	0	24,300	24,300	0	0	24,300
Palo Verde Irrigation District	Not Avail.	0	450,000	0	0	0	0	450,000	Not Avail.	Not Avail.	Not Avail.	Not Avail.
San Bernardino Municipal Water District***	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	279,624	Not Avail.	45,472	325,096
San Geronio Pass Water Agency	62,100	9,900	0	0	12050	650	0	22,600	20,500	700	2,100	22,600

November 22, 1993

* Total water supply does not include overdraft.

** Includes unaccounted for water

*** Figures obtained from San Bernardino Valley Regional Water Facilities Master Plan: (Camp Dresser and McKee)

Table 10-14
Water Supply and Demand
Water Districts Outside MWD in SCAG Region-2010
(In acre-feet)

Agency	Population	SWP Water	Colorado River Water	Local Surface Water	Groundwater	Reclaimed Water	Overdraft	Total Water Supply*	Urban Water Use	Irrigated Acreage	Agric. Water Use	Total Water Demand
Antelope Valley and East Kern Water Agency	275,000	116,768	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	68,750	Not Avail.	Not Avail.	Not Avail.
Bard Irrigation District	175	0	51,000	0	0	0	0	51,000	0	8,000	51,000	51,000
Casitas Municipal Water District	59,000	5,000	0	21,920	9,240	0	0	36,160	17,500	8,160	16,320	33,820**
Coachella Valley Water District	650,763	23,100	330,000	0	24,000	12,000	100,000	427,200	328,000	60,550	199,200	527,200
Crestline-Lake Arrowhead Water Agency	51,000	4,750	0	0	0	0	0	4,750	4,510	0	0	4,510
Desert Water Agency	116,000	38,100	0	4,000	11,000	15,000	20,900	68,100	74,000	0	15,000	89,000
Imperial Irrigation District	160,000	0	3,083,049	0	0	0	0	3,083,049	89,435	500,000	2,993,614	3,083,049
Little Rock Creek Irrigation District	6,700	2,300	0	600	3,000	0	0	5,900	2,200	100	450	2,650
Mojave Water Agency	533,000	50,800	0	0	73,300	6,800	Not Avail.	130,900	199,200	14,000	122,720	321,920
Palmdale Water District	104,000	15,500	0	2,000	10,000	0	0	27,500	27,500	0	0	27,500
Palo Verde Irrigation District	Not Avail.	0	450,000	0	0	0	0	450,000	Not Avail.	Not Avail.	Not Avail.	Not Avail.
San Bernardino Municipal Water District***	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	336,112	Not Avail.	31,584	367,496
San Geronimo Pass Water Agency	86,600	16,450	0	0	12,050	1,000	0	29,500	27,400	700	2,100	29,500

November 22, 1993

* Total water supply does not include overdraft.

** Includes unaccounted for water

*** Figures obtained from San Bernardino Valley Regional Water Facilities Master Plan: Camp Dresser and McKee

Table 10-15
Water Supply and Demand
Water Districts Outside MWD in SCAG Region-2020
(In acre-feet)

Agency	Population	SWP Water	Colorado River Water	Local Surface Water	Groundwater	Reclaimed Water	Overdraft	Total Water Supply*	Urban Water Use	Irrigated Acreage	Agric. Water	Total Water Demand
Antelope Valley and East Kern Water Agency	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.
Bard Irrigation District	175	0	51,000	0	0	0	0	51,000	0	8,000	51,000	51,000
Casitas Municipal Water District	No Estimate	5,000	0	21,920	9,240	0	0	36,160	Not Avail.	Not Avail.	Not Avail.	Not Avail.
Coachella Valley Water District	650,763	23,100	330,000	0	24,000	12,000	100,000	427,200	Not Avail.	Not Avail.	Not Avail.	Not Avail.
Crestline-Lake Arrowhead Water Agency	62,000	5,700	0	0	0	0	0	5,700	5,415	0	0	5,415
Desert Water Agency	135,000	38,100	0	4,000	11,000	18,000	31,900	71,100	85,000	0	18,000	103,000
Imperial Irrigation District	No Estimate	0	3,054,709	0	0	0	0	3,054,709	61,095	500,000	2,993,614	3,054,709
Little Rock Creek Irrigation District	9,800	2,300	0	600	3,000	0	0	5,900	3,200	50	225	3,425
Mojave Water Agency	667,000	50,800	0	0	73,300	7,500	?	131,600	233,100	14,000	122,720	355,820
Palmdale Water District	120,000	15,500	0	2,000	10,000	0	3,500	27,500	31,000	0	0	31,000
Palo Verde Irrigation District	No Estimate	0	450,000	0	0	0	0	450,000	Not Avail.	Not Avail.	Not Avail.	Not Avail.
San Bernardino Municipal Water District**	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	Not Avail.	339,760	Not Avail.	26,840	356,600
San Geronio Pass Water Agency	116,400	17,300	0	0	12,050	1,500	0	30,850	35,700	700	2,100	37,800

November 22, 1993

* Total water supply does not include overdraft.

** Figures obtained from San Bernardino Valley Regional Water Facilities Master Plan: Camp Dresser and McKee

Much of the concern related to future imported water supply concerns SWP deliveries. The primary concern related to the SWP is the restrictions on supplies due to environmental concerns associated with the Bay-Delta region in Northern California. This issue is discussed in more detail in MWD's water resources component. Another important potential impediment to SWP deliveries to non-MWD agencies is a potential for an increase in SWP demand by the City of Los Angeles. Restrictions on supplies from the Los Angeles Aqueducts are projected to result in an increase in demand for additional sources of water in Los Angeles, including an increase in demand for SWP water. This may affect the total availability of SWP water to other agencies in the region. Finally, concerns were expressed regarding the ability of current facilities to deliver the full water potential of the SWP and

An issue of reliability was also raised over the Colorado River supply by one agency. The concern was raised over the Bureau of Reclamation's attempt to revise water right agreements along the Colorado River. If water rights are amended, the possibility of reduced or fluctuating supplies from this source exist. Again, this issue is discussed in more detail in MWD's water section.

b. Groundwater Quality

Groundwater is a critical component of the water supply to the region, indeed some areas of the region are completely dependent upon groundwater for all their potable water. Groundwater is a vital source of supply to many areas in the SCAG region outside of MWD, and is used for both urban and agricultural consumption. The major concerns regarding groundwater quality include contamination, overdraft and increasing salinity and mineral levels.

Perhaps the major concern of groundwater in the SCAG region is the actual and potential contamination by nitrates, and various other fertilizers, and by solvents and other industrial by-products from activities on the surface above these basins. When groundwater is contaminated, the water cannot be used for potable water without remediation. In addition many of the groundwater basins are used conjunctively, i.e. the basins are used as storage for excess water from the SWP as well as storm runoff. When these basins are contaminated, any water stored by conjunctive use is also impacted. During an extended drought, this "extra" water becomes crucial to the water supply situation for the entire region.

Casitas Municipal Water District, Coachella Valley Water District, Desert Water Agency, and Mojave Water Agency specifically all reported overdraft conditions existing or likely to exist over the next thirty years. Casitas has problems with the loss of wells in the Channel Islands District due to migration of seawater through the aquifer created by pressure imbalance due to overpumping. Other agencies cite concerns over greater pumping costs due to lowered water tables and increased amounts of totally dissolved solids within the pumped groundwater.

c. Drinking Water Quality Standards

Another issue cited by several water providers is the increasing costs of meeting treatment requirements under Federal and State drinking water laws. In particular, many agencies cited EPA's Surface Water Treatment Rule as being an important factor in potentially increasing the costs of water. This rule requires that drinking water systems reliant on surface water to install "basic" water filtration technology that addresses the most prominent biological contaminants found in drinking water supplies, namely fecal coliform, giardia, and

cryptosporidium. The rule specifies performance criteria for filtration and disinfection. For systems required to use filtration, a 99.9 percent removal and/or inactivation must be achieved.

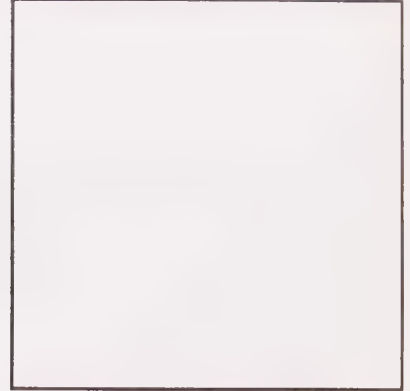
Complying with these regulations are costly, particularly for small water providers. Many smaller agencies, lacking the funding resources for major capital improvements, have responded to these mandates with an increase in the application of disinfectants. However, EPA limits on disinfectant by-products may make such treatment strategies unallowable. Additional federal funding for upgrading treatment systems may assist in meeting the demands of smaller providers, however it is unlikely to cover all costs of needed upgrades.

ENDNOTES

1. Preliminary population projections shown in SCAG's Regional Comprehensive Plan indicate a regional total of 20.5 million persons by the year 2010.
2. An acre foot (AF) is the amount of water which would cover an area of one acre (roughly the size of a football field) to a depth of one foot. An acre foot is equivalent to about 326,169 gallons. Large volume water usage is typically expressed in hundreds of cubic feet (CCF), acre feet (AF), or millions of acre feet (MAF).
3. California Metropolitan Water District Act, Chapter 429, Statutes of 1927, Section 3.
4. Planning and Management Consultants, Ltd., Interim Report No. 4, June 1991.
5. State Water Contractors, Current and Projected Water Needs in the Metropolitan Water District of Southern California Service Area, WRINT SWC Exhibit 3B, Bay-Delta Hearing, June 1992. Demand factor based on Center For the Continuing Study of the California Economy projections using 1980 dollars.
6. Dziegielseski, Ben; Opitz, Eva; and Rodrigo, Dan, Seasonal Components of Urban Water Use in Southern California, Planning and Management Consultants, Ltd., Metropolitan Water District of Southern California, March, 1990. Weighted averages were computed using data from 28 Southern California cities using the 1987 volume of seasonal use as the weighing factor.
7. State Water Contractors, Interim Hearing, WRINT SWC Exhibit 10 June 1992 Update.
8. Southern California Gas Company, 1993.
9. Thomas Anne, Es., 1991, "No Water, No Growth: What's the Connection?", California Water Reporter, November 1991, pp. 23-27.
10. Program goal statement as part of 'The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California', November 1990, p. 73.
11. "Legislation Policy Principles", delivered to the MWD Board of Directors by General Manager. Metropolitan Water District: March 9, 1993, p.2.
12. "Changes in the Central Valley Project", Western Water, Water Education Foundation, Sacramento, CA: May/June 1992, p.4.
13. "California Water: Looking to the Future," Department of Water Resources State of California. Bulletin 160-87, Sacramento: November 1987, pp. 55-56.

14. The Los Angeles County Department of Public Works (LAC/DPW) has documented the history of implementation of the flood control system. See: "Conserving Water in Los Angeles County" and "The San Gabriel River and Montebello Forebay Water Conservation System."
15. Values from LAC/DPW documents discussion with DPW staff.
16. A description and proposal of this project and various alternatives was presented in 1991 to the County Board of Supervisors.

Chapter 11



WATER QUALITY

- Introduction
- Purpose of the Water Quality Chapter
- Current Water Quality Goals and Objectives Under Existing Federal and State Law
- Water Resources in the SCAG Region
- Water Quality in the SCAG Region
- Current Framework for Water Quality Planning and Management
- Regional Issues for Improved Water Quality Planning and Management
- Recommendations and Policy Options
- Integration of Water Quality and Other Regional Issues

A. INTRODUCTION

While providing an adequate supply of water has long been one of the primary challenges facing the region, maintaining the quality of the water in the region has become an increasingly important issue. Water serves many functions in the region. It is used by households for drinking and other purposes; it is relied upon by farmers to irrigate crops; it is critical to commercial and industrial operations. It also provides important recreational benefits, for activities such as swimming, fishing, surfing and sailing. Aesthetically, Southern California's rivers, streams, lakes, and oceans are an integral part of the natural landscape that has long drawn people to the region.

Maintaining clean water is an important goal for the future success of Southern California. Yet, the historical growth and urbanization in the SCAG region has often adversely affected water resources. More people have

meant more sewage, and increased amounts of wastewater discharged into our water bodies. Urbanization has altered many of the natural filtration systems that maintain the quality of the water and has increased the amount of runoff pollution. Past industrial practices have left major underground aquifers unusable; aquifers that are relied upon by millions of residents for their drinking water.

Recent years, however, have resulted in many changes leading to improved water quality. With the assistance of federal funding, wastewater treatment has drastically improved during the past 15 years. New hazardous waste management practices have significantly reduced the likelihood that current industrial practices will contaminate groundwater supplies. Also, there is a growing awareness and scientific understanding of the relationship among water quality, the surrounding habitat, and land use. While the successes are noteworthy, new challenges still remain in the region. These issues include addressing and financing the control of non-point source pollution, such as stormwater runoff; paying for the cleanup of contaminated groundwater basins; and balancing the costs of water pollution control with other regional objectives. This chapter examines these and other issues.

Under Section 208 of the Clean Water Act, SCAG is the designated agency responsible for developing a Waste Treatment Management Plan for the region. The 208 plan is designed to provide a comprehensive planning framework for both point and nonpoint source water pollution. Specific planning requirements include, but are not limited to, identifying needed treatment works to meet anticipated needs over a 20 year period, the identification of construction priorities for the region, procedures and methods to control nonpoint source pollution from agriculture, mining and other sources. SCAG prepared the Areawide Waste Treatment Management Plan in 1979 and made amendments to the plan in 1981. This chapter, while not a comprehensive update to the 208 plan, addresses similar issues, including a regional framework for the expansion of wastewater treatment capacity.

B. PURPOSE OF THE WATER QUALITY CHAPTER

The water quality chapter is not intended to be a prescriptive plan for addressing water quality issues in the region. Many public agencies in the region have responsibility for planning for and maintaining the quality of the region's water. Instead, the chapter is intended to provide a regional perspective on current water quality issues and the plans and programs for addressing these issues, and to better clarify the relationship between water quality and other regional concerns. Accordingly, the chapter is intended to accomplish the following:

- Identify the current water quality goals and objectives for the region as established under existing law.
- Provide an inventory of current water quality problem areas in the region.
- Identify and describe the various plans and programs affecting water quality in Southern California.
- Raise some regional issues associated with maintaining and improving water quality in the region including issues in which water quality goals and policies interact with other regional goals and policies.
- Provide a framework for ensuring that growth in wastewater treatment capacity is consistent with regional growth projections.

- Provide recommendations and policy options for improving the region's water quality and the current system for managing water quality.

C. CURRENT WATER QUALITY GOALS AND OBJECTIVES UNDER EXISTING FEDERAL AND STATE LAW

Both the federal Water Pollution Control Act (commonly referred to as the "Clean Water Act") and the state law on water quality (the Porter-Cologne Water Quality Act) establish goals and objectives for water quality. These two laws provide much of the legal basis for clean water programs in the region and, therefore, the goals and objectives established in these laws guide most of the region's clean water programs.

1. GOALS

The Clean Water Act was initially passed in 1972 and has been amended several time thereafter. The law creates several regulatory requirements and programs and provides grants to state and local governments to finance clean water projects. The primary goal of the Clean Water Act is the following:

- To restore and maintain the chemical, physical, and biological integrity of the nation's water.¹

The central state law governing water quality is the Porter-Cologne Water Quality Act. The Act was passed in 1970 and established the State Water Resources Control Board and the various Regional Water Quality Control Boards, the primary state agencies responsible for maintaining water quality. The goal of the State and Regional Boards under the Porter-Cologne Act can be summarized as follows:

- To achieve and maintain water quality objectives that are necessary to protect all beneficial uses of all waters.

2. OBJECTIVES

The specific objectives for water quality in the region under current law are identified in the various Regional Water Quality Control Board Basin Plans. These plans, which are described in more detail below, provide specific objectives for various water bodies. These objectives are the limits or levels of water quality constituents or characteristics established for the protection of beneficial uses. Beneficial uses include the various current or potential uses of a waterbody, including, but not limited to domestic use, agricultural and industrial supply, power generation, recreation, aesthetic navigation, and preservation and enhancement of fish, wildlife, or other quality resources. Each waterbody may have a different set of beneficial uses and, therefore, different water quality objectives.

A summary of the water quality objectives for waterbodies in the SCAG region as contained in the Regional Basin Plans is included in the background document for the Water Quality chapter.

¹See Federal Water Pollution Control Act, §§ 101(a).

D. WATER RESOURCES IN THE SCAG REGION

Despite the perception that the Southern California region has little of its own water, the area includes a wide array of rivers, lakes, streams, groundwater basins and, of course, oceans. The major surface water features of the region are identified in the map in Figure 11-1. The water resources in the region include the following.

1. SURFACE WATER

Surface water refers to the system of lakes, rivers, streams, and creeks in the region. These systems can be divided into hydrologic basins, or integrated systems that drain a specific area. Many of the surface water systems in the region have been developed into a series of dams, flood control channels, and spreading grounds. Hence, only a portion of the natural runoff actually flows through these river systems to the ocean. In several rivers, discharges from wastewater treatment plants may provide the majority of water flow during the dry season.

The Santa Clara River Basin includes the *Ventura and Santa Clara rivers*. The Ventura River has *Matillja Lake* and *Lake Casitas* on its tributaries. The main channel of the Santa Clara River has no lakes or reservoirs, although two of the Santa Clara's tributaries, *Castaic* and *Piru* have been dammed. *Lake Hughes*, *Munz Lake*, and *Elizabeth Lake* have been created by the San Andreas Fault. Elizabeth Lake drains into Castaic Lake. Another tributary of the Santa Clara, *Piru Creek*, flows into both *Pyramid Lake* and *Lake Piru*. *Sespe Creek* also drains a considerable area.

The *Los Angeles River* and the *San Gabriel River* are considered to be one hydrologic basin. The headwaters of the San Gabriel River and tributaries of the Los Angeles River rise in the San Gabriel Mountains. Prior to extensive urbanization during this century, these two rivers descended to a low-lying area of extensive wetlands before flowing into the ocean. Open bodies of water within the basin are nearly all dammed reservoirs. The *Cogswell Reservoir*, *Morris Reservoir* along with the *San Gabriel Reservoir* in San Gabriel Canyon control and retain much of the run-off from the San Gabriel River before it exits the canyon and the *Santa Fe Dam* and *Whittier Narrows* provide flood control further down the river.

The *Rio Hondo* connects the San Gabriel River from the Whittier Narrows Dam. Reservoirs, such as Chatsworth, Los Angeles, Pacoima, Stone Canyon, Franklin, Hollywood, and Puddingstone, are important both for storage and for recreation, but are not extensive in area. Separate from the Los Angeles and San Gabriel drainage systems, *Malibu Creek* drains a significant portion of the Santa Monica Mountains.

The *Santa Ana River* drainage can be divided into an upper basin and a lower basin. The drainage of upper reaches of the Santa Ana is retained by *Big Bear Valley Dam*. The Santa Ana and *Mill Creek*, have carved very steep canyons and exit the mountains into the Bunker Hill basin. *Cajon Creek* and *Lytle Creek* also charge this basin. *Silverwood Lake* is a terminus of the *California Aqueduct*. This water is channeled through an eight-mile tunnel to provide a source of hydroelectric power to Devil's Canyon power plant, and then is piped to *Lake Perris*.

Major Surface Water Features



10/94/93

The middle reaches of the Santa Ana River are perennial only because of waste treatment plant effluent. All the drainage of the Eastern San Gabriel Mountains - San Antonio Creek, Day's Creek, Etiwanda Creek, Deer Creek and Cucamonga Creek - are modified as storm drains and channeled to the El Prado Dam. *Lake Matthews* and Lake Perris provide storage for Colorado River water and State Water Project water, respectively. *Lake Elsinore* and *Railroad Canyon Reservoir* are other surface bodies of water within this basin.

Lower Basin drainage is dominated by the flood control dam at El Prado. The Santa Ana Canyon, which separates the Chino Hills from the Santa Ana Mountains is the major drainage of heavily urbanized Orange County. The lower Santa Ana has been channelized and modified so that in most years flows do not reach the sea, but are used to recharge groundwater. Small portions of wetlands still remain in Orange County, Bolsa Chica, and the Upper Newport Bay area.

The *Mojave River* rises in the San Bernardino Mountains and flows north and then eastward to the Mojave Sink. The Mojave River is very important to the growing High Desert communities as it is the only reliable source of ground water. *Lake Arrowhead* is a reservoir on one of the Mojave River tributaries.

Whitewater River drains the eastern flanks of the San Gorgonio and collects drainage from the San Jacinto mountains. The Canyons of the Anza-Borrego State Park contain seeps and springs. The Whitewater River becomes the main drainage of the Coachella Valley to the *Salton Sea*, a large saline body of water. The Salton Sea was created by severe flooding that poured Colorado River waters into the below sea-level depression for almost two years (1905-07). The Salton Sea also receives drainage from the *New River*, which crosses the border from Mexico. Finally, on the eastern border of the SCAG region runs the *Colorado River*, which supplies a significant amount of agricultural and drinking water to the region.

2. GROUNDWATER

The SCAG region contains many large groundwater basins. Prior to the development of the Los Angeles Aqueduct, groundwater served as the primary source of potable water. Even with the development of imported water supplies, groundwater continues to provide a significant portion of the region's water. Major groundwater basins in the region include the *Central, Raymond, San Fernando, Central, West Coast* and *San Gabriel* in Los Angeles County; the Upper Santa Ana Valley Basin system including *Bunker Hill*, and *Chino Basins* in San Bernardino and Riverside counties; the *Coastal Plain Basin* in Orange County; the *Coachella Valley Basin* in Riverside County; and the *Oxnard Plain Basin* in Ventura County.

3. OCEANS AND ESTUARIES

Perhaps Southern California's most important natural attribute is the Pacific Ocean. The coastline of the SCAG region contains many unique bays, harbors, and estuaries. Starting from the north, these include the estuary at the mouth of the Santa Clara River where wastewater flows maintain a wetland/estuary environment. Further south, lies the *Santa Monica Bay*, the largest indentation on the Southern California coastline. The Bay extends north from Point Dume above Malibu to the Palos Verdes Peninsula in the South. Within the Santa Monica Bay is Marina Del Rey, a large man-made recreational marina. The marina lies adjacent to Ballona Creek, a channelized waterway that receives a significant amount of the urban runoff

draining directly into the Santa Monica Bay. Further south in the Bay is *King Harbor* in Redondo Beach, another recreational marina.

On the southern side of the Palos Verdes Peninsula lies the Los Angeles and Long Beach harbors, two of the busiest commercial harbors in the world. The Los Angeles River, which carries the majority of Los Angeles County's urban runoff, as well as wastewater flows from inland treatment plants, flows into the ocean at this point. Further south is *Newport Bay*, which is an enclosed estuary with extensive development in and around the Bay.

4. WETLANDS

Wetlands are unique areas in which the water table is essentially at the same level as the land. Wetlands include marshes, swamps, bogs, and playa lakes. In recent years, the environmental importance of wetlands have become better known. Wetlands provide habitat for a large number of plants and species and also serve as natural filters, cleansing water of many pollutants. In addition, wetlands function as natural flood control systems, absorbing much of the overflow water from rivers and streams. The SCAG region, particularly the coastal plains, were once home to vast acreage of wetlands. Today, estimates indicate that in some areas, more than 90 percent of the wetlands have been lost. However, wetland areas still exist around Ballona Creek in Los Angeles, in coastal areas of undeveloped portions of Orange County and in other areas in the region.

5. IMPORTED WATER

Imported water is used throughout the region for drinking, agricultural, and industrial purposes. It also provides water for groundwater recharge and for recreational uses. Imported water in Southern California comes from three sources: the *State Water Project*, which carries water from the Sacramento Bay Delta area, the *Colorado River Aqueduct*, and the *Los Angeles Aqueduct*, which imports water from the Owens Valley and Mono Basin. In addition, new federal legislation will allow the region greater access to water from another source, the Central Valley Project. A detailed discussion of these imported sources is provided in the Water Resources chapter.

E. WATER QUALITY IN THE SCAG REGION

How is the quality of the water in the SCAG region? The most direct source for answering this question is the State Water Quality Assessment (SWQA) Report. The SWQA Report is a compilation of Regional Quality Assessment Reports that are adopted first by each regional water quality control board. The report is prepared every 2 years and is used to satisfy various federal reporting requirements under the Clean Water Act. The report is generated from a Water Quality Assessment Database which is maintained at the Regional Board and is updated as new information is available.

This report provides a general assessment of the quality of waterbodies in the State. The SWQA classifies each waterbody into one of three categories:

- Good-Quality Water,

- Intermediate-Quality Water, and
- Impaired-Quality Water.

A fourth classification of Unknown-Quality Water is used when observations are not available. Each waterbody is also identified by its type, including estuaries, groundwater, lakes and reservoirs, oceans and open bays, rivers and streams, saline lakes, and wetlands. All these waterbody types exist in the SCAG region and a significant number of them have been identified as having Impaired-Water-Quality. The summary tables for the SWQA for waterbodies in the SCAG region are included as an appendix to the Background Document. Major waterbodies identified as impaired include the following:

1. RIVERS AND STREAMS

Major rivers in the region include the Santa Clara River, Los Angeles River, San Gabriel River, Santa Ana River, Mojave River, Whitewater River, New River, and the Colorado River. Some of these rivers are intermittent (i.e., they are dry for parts of the year) and many parts of them have been channelized for flood prevention purposes, particularly around urban areas. The Colorado River, which borders the Southeastern portion of the region, is a major source of drinking and irrigation supply water for Southern California.

Much of the water that flows through some of these rivers (particularly those in the urbanized areas) is effluent from wastewater treatment plants. Over the course of a river or stream, various inputs from either point (e.g., wastewater or industrial facilities) or from non-point (agricultural or stormwater runoff) can change the quality of the water in the river. Thus, most of the rivers contain reaches with water quality characteristics ranging from good through intermediate to impaired. Of particular concern in the region is the New River, which suffers from significant contamination from poorly treated wastewater and industrial discharges from Mexico.

2. LAKES

The region's largest inland waterbody, the Salton Sea, has significant water quality problems. The Sea is essentially a man-made waterbody, supported by inflows from agricultural return flows. The Sea lacks an outlet and the water level is maintained through evaporation. This evaporation leaves behind salts and, thus, the salinity in the sea is constantly increasing, which impacts both fish and riparian habitat. In addition, toxic contamination is a concern in the Sea, due in large part to discharges from Mexican facilities into the New River. In addition, recently implemented conservation practices may reduce the amount of fresh water that flows to, and sustains the Salton Sea.

3. OPEN OCEANS AND BAYS

Santa Monica Bay, which extends from Malibu to the Palos Verdes Peninsula, has impaired water quality as the result of several sources. Past wastewater disposal practices included the dumping of large amounts of PCBs, DDTs, and heavy metals into the Bay, which have led to persistent contamination problems in sediments, biota, and seafood. The Bay continues to receive the majority of the region's effluent from wastewater treatment plants. In addition, stormwater pollution, which drains directly into the Bay, may be the major current source of pollution.

4. GROUNDWATER

Several of the major groundwater basins, relied upon by millions of residents and businesses for potable water, suffer from contamination from past industrial and agricultural practices and from problems due to overdraft. Contamination from common industrial organic solvents, including trichlorethylene (TCE), perchloroethylene (PCE), and from nitrates has been found in many of the major groundwater basins underlying Los Angeles County. Widespread contamination has been discovered in both the San Fernando Valley and San Gabriel Valley basins. The U.S. Environmental Protection Agency (EPA) has declared both basins "Superfund" sites under the Comprehensive Environmental Response and Liability Act (CERCLA). Remediation work directed by EPA to extract and treat the contaminated water has begun in the San Fernando Valley. Remediation work has yet to begin in the San Gabriel Valley, although the San Gabriel Basin Water Quality Authority has developed a plan to provide a comprehensive, locally based, solution to the contamination problem.

Other impaired groundwater basins include the Ventura City-Oxnard Plain Basin, which suffers from saltwater intrusion due to continued pumping; the Chino and Middle Santa Ana basins, which have been affected by agricultural and dairy practices; and the Mojave Basin, which has wide variations in the water table from excessive pumping and contamination from past waste disposal practices.

5. BAYS AND HARBORS

The state's water quality assessment identifies several bays and harbors in the region with impaired water quality. These include Alamitos Bay, King Harbor, Long Beach Harbor, Los Angeles Harbor, Marina Del Rey, and Port Hueneme. A common problem with these bays and harbors includes heavy metal contamination of sediments. Impacts to biota is often significant in these bays and harbors, and has led to health advisories due to elevated levels of contamination in shellfish tissues.

6. ESTUARIES

Estuaries include the area's tidal prisms and tidal wetlands. Those identified as impaired include Ballona Wetlands, Colorado Lagoon, Dominguez Channel Tidal Prism, Los Angeles River Tidal Prism, Malibu Lagoon, Mugu Lagoon, San Gabriel River Tidal Prism, Santa Clara River Estuary, and the Ventura River Estuary. These estuaries suffer from similar problems as the bays and harbors—elevated heavy metal levels—and also have potential problems with eutrophication. In addition, significant alteration of wetlands from development has created habitat and species problems in areas such as the Ballona Wetlands.

F. CURRENT FRAMEWORK FOR WATER QUALITY PLANNING AND MANAGEMENT

Who is responsible for planning and managing water quality in Southern California? The answer to this question is not as simple as it might appear. Numerous federal, state, and local governmental entities in one way or another are vested with responsibilities that affect water quality. In addition, private businesses and organizations also have significant legal requirements to ensure that their activities do not adversely affect water quality.

One of the purposes of this water quality chapter is to identify the agencies with planning and management responsibilities for water quality in the region. The Background Document to this chapter provides a more detailed identification of the various responsible agencies as well as descriptions of their functions and responsibilities.

The primary regional planning documents for water quality in the SCAG region are the basin plans prepared by the State Regional Water Quality Control Boards (RWQCBs). Four such plans, which also include specific regulatory controls, cover most of the water resources in the SCAG region. The purpose and structure of these basin plans is described below.

While these plans are important parts of the water planning and management process, they do not cover many of the planned activities in the region for improving water quality. Thus, this chapter identifies the additional major organizations, primarily public sector, that have water quality planning and management responsibilities within the SCAG region. The list of organizations contained in this document is not intended to be exhaustive. However, it provides an overview of the intricate and sometimes diffuse nature of water quality planning and management in the SCAG region.

1. REGIONAL WATER QUALITY CONTROL BOARD BASIN PLANS

The primary planning documents for improving water quality in the SCAG region are prepared by the State Regional Water Quality Control Boards. There are nine RWQCBs throughout the State of California. Six of these boards overlap with the SCAG boundaries (*see* Figure 11-2). Of these six, almost all of the SCAG region is covered by four boards: the Los Angeles Region (No. 4), the Santa Ana Region (No. 8), the Lahontan Region (No. 6), and the Colorado River Basin Region (No. 7). In addition to the regional boards, the State Water Resources Control Board (SWRCB) is responsible for establishing statewide policy on water quality issues. Both the SWRCB and the regional boards are part of the California Environmental Protection Agency (Cal-EPA).

The regional boards have primary responsibility for implementing the state Porter-Cologne Water Quality Act, the major water quality legislation in California, and the CWA. Responsibilities under both of these acts include developing "basin plans" for the regions, which provide objectives for improving or maintaining water quality, and issuing water quality permits to dischargers.

The Porter-Cologne Act directs each regional board to "... formulate and adopt water quality control plans for all areas within the region."² There are three fundamental components in these plans:

1. Establishment of Beneficial Uses. In the basin plan, each regional board must identify the "beneficial uses" of each water body. Beneficial uses are the various ways in which a water body may be used and include such activities as municipal and domestic water supply, agricultural supply, groundwater recharge, industrial supply, hydropower generation, wildlife and aquatic habitat, and recreational uses.
2. Establishment of Water Quality Objectives. Water quality objectives are the limits or levels of water constituents or characteristics established to protect beneficial uses. These objectives can either be

²Water Code §§ 13000-13999.16.

Figure 11-2

California Regional Water Control Boards in the SCAG Region



expressed in narrative or numerical form. In addition, the objectives can apply to all water bodies or types of water bodies in the region or to a specific water body. When combined with beneficial uses, water quality objectives establish the specific standards that must be met for a water body.

3. Implementation Plan. The implementation plan describes the programs, projects, and other actions necessary to achieve the objectives established in the basin plan. The primary mechanism for implementing the point source portions of the basin plan is through issuing and enforcing waste discharge and National Pollutant Discharge Elimination System (NPDES) permits to entities discharging waste water to either the land or to a water body. In addition, the boards implement non-point source loan programs, issue NPDES permits for stormwater, and oversee groundwater remediation projects. Implementation measures for nonpoint source discharges are carried out in accordance with the state's "Nonpoint Source Management Plan" as adopted by the State Water Resources Control Board in 1988.

Basin plans are in effect for all four of the regional boards that cover most of the SCAG region. The Porter-Cologne Act requires regional boards to review and, if necessary, update these plans every three years (known as the "triennial review"). Several of the plans in the SCAG region are in the process of being updated. The current status of the regional basin plans in covering the SCAG region are as follows:

1. Los Angeles Region. The Los Angeles Region develops basin plans for two areas: the Santa Clara River Basin and the Los Angeles River Basin. The plans for both of these basins were developed and adopted by the regional board in 1975. The L.A. Regional Board made some revisions to the plan in 1978, 1990, and 1991. A triennial review of the plan is currently underway that will result in more comprehensive changes to the 1975 plan. The updated plan is expected to be adopted in early 1994.
2. Santa Ana Region. The Santa Ana Region first adopted its plan in 1975 and then conducted a complete update of the plan in 1983. The Santa Ana Regional Board is in the process of updating the plan again and is expected to adopt a revised regional plan between late 1993 and early 1994.
3. Colorado River Region. The Colorado River Regional Board adopted its most recent basin plan in 1991 and is working on an update to the plan to be released by the end of 1993.
4. Lahontan Region. The Lahontan Region adopted its basin plan in 1975 and has amended the plan several times since then. The Lahontan Board is currently undertaking a revision to the basin plan.

2. OTHER PLANNING AND MANAGEMENT ACTIVITIES

Numerous other governmental agencies have planning and management responsibilities in the SCAG region. They include federal, state, regional, and local agencies that implement programs relating either directly or indirectly to maintaining water quality. These agencies and their responsibilities are identified in Figure 11-3. The specific responsibilities and activities are described in more detail in the background document for this chapter.

Figure 11-3 3

**Partial List of Agencies with Water Quality
Planning and Management Responsibilities
in the SCAG Region**

A. Federal Agencies

1. Environmental Protection Agency
2. Army Corp of Engineers
3. Department of the Interior
 - a. Bureau of Reclamation
 - b. U.S. Fish and Wildlife Service
 - c. National Park Service
 - d. Bureau of Land Management
 - e. U.S. Geological Survey
 - f. U.S. Forest Service
4. Department of Commerce, National Oceanic and Atmospheric Administration
5. U.S. Coast Guard
6. Department of Agriculture, Soil Conservation Service

B. State Agencies

1. California Environmental Protection Agency
 - a. State Water Resources Control Board
 - b. Regional Water Quality Control Boards
 - c. Department of Toxic Substances Control
 - d. Department of Pesticide Regulation
 - e. Integrated Waste Management Board

Figure 11-3 (continued)

**Partial List of Agencies with Water Quality
Planning and Management Responsibilities
in the SCAG Region (continued)**

B. State Agencies (Cont'd)

2. California Resources Agency
 - a. Department of Water Resources
 - b. Department of Fish and Game
 - c. California Coastal Commission
 - d. State Coastal Conservancy
 - e. Colorado River Board of California
3. Department of Health Services, Office of Drinking Water

C. Regional and Local Agencies

1. City and County General Purpose Governments
2. Comprehensive Regional Planning Organizations
3. Single Purpose Agencies
 - a. Wastewater Treatment Agencies
 - b. Water Supply Agencies
 - (1) Metropolitan Water District
 - (2) Wholesale Water Suppliers Outside of MWD
 - (3) Retail Water Agencies
 - c. Flood Control Districts
 - d. Irrigation Districts
 - e. Resource Conservation Districts
 - f. Water Replenishment Districts
 - g. Water Masters
 - h. Others
 - (1) San Gabriel Basin Water Quality Authority
 - (2) Santa Ana Watershed Project Authority
 - (3) Santa Monica Bay Restoration Project
 - (4) Southern California Coastal Water Research Project

Service Area

G. REGIONAL ISSUES FOR IMPROVED WATER QUALITY PLANNING AND MANAGEMENT

Numerous important issues face the region as it strives to maintain and improve its water quality. This chapter of the RCP identifies and discusses several of these issues. They include:

1. Implications of Continued Growth in the South Coast Region

The SCAG region has experienced population and urban growth throughout the past quarter-century unparalleled anywhere in the United States. Projections indicate that growth is likely to continue throughout the next 15 to 20 years. This growth presents several water quality problems. It creates an increased demand for wastewater treatment services as additional development and additional residents generate more wastewater. Continued growth, particularly as it includes increased urbanization, will also affect the amount and quality of storm-water runoff, a major source of water pollution in the region. In addition, the growing population will require more drinking water, and potentially exacerbate the water quality problems associated with increasing water supplies. Since the issuance of the 208 plan in 1979, the region has lacked a comprehensive framework for planning for future wastewater treatment plant development and expansion. Current "conformity" procedures exist, under the mandates of the federal Clean Air Act, to ensure that individual development or expansion projects are not in conflict with regional air quality objectives. The process of ensuring conformity with the region's air quality and water quality objectives will be facilitated by updating the information in the 208 plan regarding population projections for the region's wastewater facility service areas. Such an update, conducted in cooperation with local wastewater treatment agencies, is to be included as part of the RCP process.

2. FUTURE NON-POINT SOURCE MANAGEMENT

Nonpoint source pollution, and in particular stormwater runoff, is increasingly becoming the most significant water pollution source in the region, particularly for coastal waters. Agriculture is also a large generator of nonpoint source pollution. The federal, state, and local programs and resources dedicated toward water quality, however, have traditionally had a primary focus on point sources (i.e., discharges from wastewater treatment facilities and industries). While this attention to point-source pollution has resulted in considerable positive improvements in water quality, emphasis on nonpoint sources will be crucial to making additional and needed progress. Such an emphasis on nonpoint sources, however, will require significant resources. A comprehensive analysis of the potential costs associated with nonpoint source pollution control is needed, along with an identification of potential sources for this funding. Such an analysis will facilitate future discussions in the region regarding policy options for addressing nonpoint source pollution.

In addition, because of the relative importance of nonpoint source pollution, the region will need to evaluate the resources it currently expends on water pollution control to consider, (1) whether the total amount is disproportionately spent on point sources, and (2) whether changes in where the money is spent need to be considered to maximize public benefits. In addition, planning for the control and quality improvement of nonpoint source pollution needs to be more fully integrated into the local planning process. Additional attention in local general plan development focusing on the nonpoint source pollution issue is critical in effective control of this significant source of pollution.

3. WATERSHEDS AS A PLANNING AND MANAGEMENT FRAMEWORK

A growing consensus exists among the water pollution community that more effective planning and management of water quality could be achieved through a process of "comprehensive watershed management." A watershed is the system of creeks, streams, and rivers that flow into a common water body and includes the associated riparian habitat. Watersheds are distinct ecosystems, such that changes to one part of the system can have effects on other parts. For example, changes in the riparian vegetation to a stream that eventually flows into a lake can increase the pollutant loading to that stream and impair the water quality of the lake.

The traditional planning and management of water quality has focused primarily on individual water bodies. In addition, coordination among the water pollution agencies, various land use agencies, water supply agencies, and other public entities that affect a watershed has been sporadic. In watershed management, both public and private agencies that rely upon or manage components of a water body, work in a cooperative fashion to determine the best strategy for improving water quality in the watershed. These "stakeholders" jointly determine the problems in the watershed, search for consensus on the actions to be taken, and then implement those actions in an integrated fashion. Such cooperative effort will lead to more cost-effective solutions to ensuring that the "beneficial uses" of the region's waterbodies are maintained.

The Santa Monica Bay Restoration Project (SMBRP) represents an example of watershed management on a broad scale. The SMBRP is part of the federal National Estuary Program and is required to develop a comprehensive plan for improving water quality in the bay. This plan is being developed through the coordinated efforts of federal, state, and local government agencies, industry representatives, and community and environmental groups. Similar types of coordinated actions are developing to address the water quality problems of the Salton Sea and the Santa Ana River watershed. These watershed management projects serve as examples to be used for other watersheds in the region.

4. FINANCING GROUNDWATER CLEANUPS

The region faces a significant environmental and economic problem from contaminated groundwater. The contamination threatens important sources of drinking water for the growing region. In addition, the liability associated with cleaning up contaminated groundwater poses financial threats to local industries and to local governments. A coordinated, local-based approach to addressing the groundwater issue in areas such as the San Gabriel Valley is crucial to the future of the region. Such an approach would leverage the available federal and state resources to address the problems, while apportioning the local financial burden in an equitable fashion.

5. REDUCING REGULATORY OVERLAP

The watershed management approaches, as described above, will require agencies at all level of governments to work together in a cooperative fashion. This chapter identifies some of the many agencies that affect water quality in the region. As the region faces the difficult problems posed by nonpoint source pollution, the ability for these agencies to work together effectively, while avoiding unnecessary duplication, will be crucial.

H. RECOMMENDATIONS AND POLICY OPTIONS

To improve the planning and management of water quality in the SCAG region, this chapter offers several recommendations. These recommendations include actions or activities that can be undertaken by regional entities, such as SCAG, as well as policies and programs that can be explored by other agencies, particularly at the state and federal level. These recommendations include the following:

1. Water quality regulatory implementation should be streamlined and overlaps with other regulatory programs should be identified and eliminated to reduce economic impacts on local businesses.

Discussion: This Water Quality chapter is a first step at a comprehensive identification of the various water-related agencies in the SCAG region. The continuation of this effort along with other state and regional streamlining projects is critical to improving water quality in the region in the most cost-efficient manner. Such efforts include streamlining permitting process, including the integration of water permitting into ongoing "one-stop" permitting efforts and reducing overlaps in the overlapping responsibilities of water quality and other agencies in such areas as solid waste facility permitting and inspections.

2. "Watershed management" programs and strategies should be encouraged, recognizing the primary role of local governments in such efforts.

Discussion: Watershed management can be encouraged in several ways. Changes to current federal and state law for water quality should be amended to incorporate watershed management as an integral part of state and federal water quality programs. These watershed management efforts should facilitate local decision-making in establishing the water quality objectives for a water body and the strategies for achieving those objectives, including the appropriate public expenditures on point source control and nonpoint source control, strategies for wetlands enhancement, and funding approaches. In addition, federal and state funding of water quality projects should be targeted at recommendations stemming from water quality planning efforts and should be flexible to finance a variety of water quality projects.

3. SCAG shall play a coordinating role in watershed management efforts at the subregional level by 1) providing consistent regional data; 2) serving as a liaison between local watershed efforts at state and federal agencies; and 3) ensuring that watershed planning is consistent with other planning objectives (e.g., transportation, air quality, water supply).

Discussion: Watershed management initiatives will be most effective when local governments are integrated into the decision-making process. The regional comprehensive planning process offers the opportunity for incorporating an existing local-based decision making system into watershed management. Existing subregions in SCAG are primarily established along jurisdictional boundaries. As appropriate watershed management boundaries are identified within the region, the appropriate linkage with subregional entities should be made so that watershed management can be part of the subregional planning process.

4. Opportunities for pollutant trading and other market-incentive water quality programs as an alternative to strict command-and-control regulation should be encouraged.

Discussion: Appropriate waterbodies in the region for pollutant trading programs should first be identified. A pollutant trading system for water quality could operate similar to the RECLAIM program being considered for air quality. Under such a system, an overall pollutant loading limit for all dischargers into a water body would be established. Each facility discharging into the waterbody would be allocated, based on historical discharges, a specific number of credits. These credits allow the facility to discharge a specified amount of pollutants. The facility can either discharge less than the credits allow and sell the credits or can buy credits from another facility and discharge more than their original allocation. A trading system encourages facilities in which it is less expensive to reduce their pollution to do so while at the same time reducing the costs to facilities that face higher costs. The Los Angeles and Santa Ana Rivers may be potential candidates. Additional analysis and evaluation should be conducted to determine whether a pilot project for pollutant trading can be initiated on one of these, or another appropriate, waterbody.

5. SCAG shall support regional efforts to identify and cooperatively plan for wetlands to facilitate both the sustaining of the amount and quality of wetlands in the region as well expedite the process for obtaining wetlands permits.

Discussion. The urban growth in the region has resulted in the loss of vast amounts of wetlands. Wetlands play an important role in maintaining water quality by providing natural filtration systems. In addition, wetlands are important habitats for many types of species. However, current efforts at wetlands protection through the federal permitting process is a piece-meal approach, which can result in long, sometimes unnecessary, delays in project approval. More regional, cooperative planning for maintaining and/or improving the region's wetlands is needed. Such an approach would encourage a regional identification of all wetlands resources and their relative value and provide a framework for making future decisions in the region regarding wetlands.

6. Cleaning up contamination in the region's major groundwater aquifers is critical to the long-term economic and environmental health of the region. The financing of such clean-ups should leverage state and federal resources and minimize significant impacts on the local economy.

Discussion: The contamination of major aquifers in the SCAG region threatens our long-term water supply. Because of the unique nature of this contamination (i.e., hundreds of contributing sources, numerous water purveyors, and the large population relying on the water source), different approaches than the application of stringent federal joint-and-several liability are necessary. Current state and federal proposals for the San Gabriel Basin are important steps in addressing this problem while maintaining the economic viability of the region.

7. Water reclamation shall be encouraged throughout the region where feasible and appropriate to reduce reliance on imported water and to reduce wastewater discharges. Current administrative impediments to increased use of wastewater should be addressed.

Discussion. Water reclamation is a priority in both the Water Quality and Water Resources chapters of the RCP. The Water Resources chapter projects that a growing percentage of total water supply will

come from reclaimed water. To achieve this or higher percentages, current impediments to water reclamation must be overcome in the region. These impediments include financial obstacles, insufficient infrastructure, health concerns, and public perception. A regional cooperative effort among water supply agencies, local governments, public works officials, state and federal agencies, and others should be initiated to identify and address these impediments.

8. Wastewater treatment agency facility planning and facility development should be consistent with population projections contained in the RCP.

Discussion. Ensuring that wastewater capacity planning and development is consistent with SCAG's population projections serves two important goals. First, it ensures that adequate treatment capacity exists to manage the region's waste thereby serving an important clean water objective. One of the primary purposes of the Clean Water Act Section 208 planning process is to ensure that adequate and environmentally beneficial treatment capacity will be available to meet the demands of a growing Southern California population. Without such capacity, improperly treated wastewater will contribute to poor water quality in the region.

Second, consistency between wastewater capacity expansion and population projections helps ensure that increases in capacity do not unnecessarily outpace projections of future population and development. Capacity expansions may serve as an inducement to development and growth in a manner that is contrary to the region's air quality goals. EPA recognized this is the federal Clean Air Act. Section 316 of the Act gives EPA the authority to withhold grants for sewage treatment works construction if such construction does not conform with the region's air quality plan. In addition, Section 176 of the Act prohibits any federal agency from providing financial assistance, licensing, permitting or approving any activity that does not conform with a region's air plan. This section of the act also prohibits a metropolitan planning agency, such as SCAG, from granting approval of a project, program, or plan that does not conform to the air plan. Pursuant to modifications made to this section in the 1990 Clean Air Act Amendments, EPA is currently in the process of promulgating regulations on the procedures for determining conformity.

In conjunction with the 1991 air quality plan for the South Coast Air Basin, SCAG developed conformity procedures for wastewater treatment facilities. These procedures require wastewater facility plans and projects to meet two criteria before a finding of conformity can be made. First, they must be sized and service-phased according to the population projections for the service area adopted or approved by SCAG. Second, the wastewater treatment agency must have a monitoring and reporting system for projects within its service area. This system must include an on-going process and procedures for reviewing and commenting on all general development projects, for monitoring development approvals, for sharing information with other regional and local agencies, and for reporting information to SCAG. The finding of conformity, as described in the conformity procedures, is to be made in the time the Regional Water Quality Control Board either issues or renews the NPDES permit for the facility.

Since the development of SCAG's conformity procedures, two changes have occurred. First, questions have been raised regarding whether the issuance of an NPDES permit by the Regional Water Quality Control Board constitutes a federal action and, therefore, whether a finding of conformity is required at the time such a permit is issued. Second, as indicated above, EPA is developing regulations for conformity to implement Section 176 of the Clean Air Act. Proposed regulations were issued on March

15, 1993 and final regulations are anticipated in early 1994. The proposed regulations exempted NPDES permits from the conformity review, although it is unclear whether this exemption will remain in the final regulations. Following the promulgation of these final regulations, SCAG will be required to revise its existing conformity guidelines. It should be noted that specific conformity guidelines adopted as part of a State Implementation Plan, such as those developed by SCAG, can be more restrictive than the federal rules.

In light of the uncertainties surrounding the federal conformity requirements, as well as the need to have a region-wide process for ensuring appropriate wastewater capacity growth, SCAG is proposing the following actions as a supplement to the existing conformity procedures. Consistent with the philosophy underlying the RCP, this process emphasizes cooperative efforts between local agencies (i.e., wastewater treatment facilities) and SCAG. Under this process, SCAG will allocate its growth projections by each wastewater treatment service area in the region and work cooperatively with wastewater treatment agencies to ensure that facility plans are consistent with such growth projections. Such an effort is designed to minimize the need for conformity review for specific projects.

Actions

The following actions are proposed:

1. Upon issuance of the final RCP, SCAG will allocate the growth projections contained in the growth management component of the RCP by the service area of each wastewater treatment agency in the SCAG region.
2. SCAG, in conjunction with wastewater treatment agencies in the region, will review existing facility plans to ensure that the population, housing, and employment projections underlying these plans are consistent with the SCAG-adopted projections.
3. In instances in which wastewater treatment facility plans are not consistent with SCAG-adopted growth projections, SCAG will work with such agencies to either: 1) modify facility plans to conform with the growth projections, or 2) reevaluate the growth projections for the wastewater treatment agency service area, or 3) both.
4. Facility plans found to be consistent with the SCAG-adopted population projections will be incorporated into the water quality component of the regional comprehensive plan.
5. Conformity determinations for specific facilities will be conducted consistent with the 1991 conformity guidelines. However, SCAG will reevaluate these guidelines in light of the final regulations to be adopted by EPA regarding conformity, and the changes to the State Implementation Plan that must follow. The 1991 guidelines will, in cooperation with wastewater treatment agencies, be revised accordingly.
6. Eligible projects under state and federal water quality infrastructure funding programs should include a range of projects, including non-point source and water reclamation projects.

Discussion: Current state and federal funding (as well as future funding under a reauthorized Clean Water Act) must recognize the unique water quality problems of different regions and provide flexibility in financing different types of water quality projects.

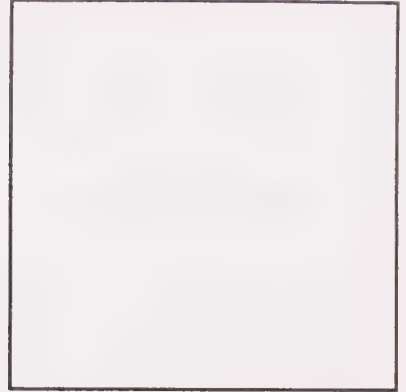
I. INTEGRATION OF WATER QUALITY AND OTHER REGIONAL ISSUES

Water quality is related to several of the other issues in the RCP. The most direct relationship is with water supply. Poor water quality in the region—in particular, poor groundwater quality — is and will continue to have significant implications for the supply of water for drinking and commercial purposes in the region. In addition, water quality in other regions of the state is interconnected with the supply of imported water into this region. Other interrelationships between water quality and other chapters of the plan include:

- **Economic Development and Water Quality.** Maintaining water quality is important to the economic viability of the region. However, there are increasing regulatory and liability costs associated with maintaining water quality and these costs can have adverse effects on operating expenses of regional businesses. Businesses are also subject to regulatory costs to meet NPDES permit requirements or pretreatment standards. In some areas, these costs may be increasing due to the poor quality of the imported water supply. This chapter emphasizes the need to streamline water quality regulation and to explore market-based regulatory alternatives when possible. Liability costs are primarily associated with the clean-up of contaminated groundwater in the San Gabriel Valley, San Fernando Valley, and other areas. This chapter recognizes the need to address these groundwater concerns while not driving companies out of business.
- **Growth Management and Water Quality.** The projected population growth in this plan will have significant implications for maintaining water quality, by increasing the demand for wastewater treatment and by increasing the urbanized surface area and, therefore, the amount of urban runoff.
- **Air Quality and Water Quality.** The impact of poor air quality on water quality is an important, but poorly understood, issue. Some research indicates that air contaminants can substantially contribute to poor water quality in the region through a process known as "aerial fallout." Thus, efforts at improving air quality as described in the air quality chapter, may also have benefits for water quality.
- **Solid and Hazardous Waste and Water Quality.** Primary objectives for solid and hazardous waste management are to reduce and recycle wastes and to provide environmentally safe disposal options. These objectives contribute directly to improved water quality by protecting groundwater and surface water from contamination.

An additional important relationship is the need for adequate flood control in the region and the impact of flood control projects on nonpoint source runoff. Traditionally, flood control projects have increased the amount of urban runoff by directly channeling stormwater through a system of storm drains, concrete channels, and channelized rivers to the ocean. Thus, the need to maintain adequate flood control is often in conflict with efforts to reduce urban runoff. More information is needed on the costs and safety implications of alternative flood control systems in the region.

Chapter 12



ENERGY

- Introduction
- Energy Use: Current
- Energy Demand: Future
- Energy Use Implications
- Efficiency Options Assessment
- Efficiency Opportunity Evaluation
- Efficiency Opportunity Agenda: Implementation

A. INTRODUCTION

California has an abundance of natural resources, ranging from a pristine coastline to the Sierra Nevada crest. With a wide-ranging climate of sun and wind, coupled with significant fossil fuel reserves, California boasts among the most diverse energy systems in the world—one which utilizes wind, geothermal, hydro-electric, solar, and nuclear energy, as well as conventional fossil fuels, to power homes, businesses, and industry. This abundance of natural resources provides an opportunity for utilities to select the most economic and efficient means of providing energy service needs. California remains vulnerable, however, to supply disruptions of the petroleum-based liquid fuels that provide the energy used in the vast majority of the state's transportation systems.

The counties and cities comprising the SCAG region are a reflection of the diversity characterizing California. While the region itself generates electricity from geothermal (Imperial County), wind (San Geronio Pass) and solar (San Bernardino County), the electricity generation facilities in the region remain primarily fossil-fuel fired. This, along with massive transportation requirements, creates significant concerns regarding the amount of air pollutants and carbon dioxide generated every day by the combustion of fossil fuels in the region.

Moreover, the generation and use of energy is not without cost. California's "energy bill" totals billions of dollars annually. Largely unquantified costs of associated public health and environmental quality impacts to air and water increase these costs significantly. The absence of a diversity of fuel choices in the transportation sector presents additional security and economic risk.

While energy supplies are adequate, the population growth, economic growth, and mobility requirements underlying the Regional Comprehensive Plan (RCP) will add significantly to both energy use and associated environmental and public health impacts. In addition to higher direct costs, major infrastructure and pollution control investments will be required.

1. PREPARATION

The Energy Chapter has been prepared by the staff of the California Energy Commission (CEC) and a consulting team lead by Sedway Cooke Associates, at the request of the Southern California Association of Governments (SCAG). The chapter has not been approved by the CEC and will not be formally adopted; rather, it is intended as a guide to potential efficiency opportunity choices which can be made by local and regional officials. It is one chapter of SCAG's RCP to be implemented as desired by individual member governments.

This chapter is being released for public review and comment. A public workshop will take place in December 1993. The CEC Conservation Programs Committee will conduct this workshop.

2. PURPOSE AND SCOPE

The Energy Chapter is intended to provide regional and local decision-makers with an understanding of the pervasive role that energy plays in the modern economy. Given recent changes in federal and state law, the Energy Chapter illustrates that higher degrees of integration may be needed in regional planning than have previously existed in separate, single-purpose arenas. The chapter also shows that local decision-makers can influence energy usage and its consequences in their jurisdictions.

State, regional, and local decision-makers will be faced with policy choices regarding how to accommodate expected growth in a manner that maximizes efficient use of resources and minimizes life-cycle cost and environmental and health impacts. Many of these choices will be interrelated in obscure, poorly analyzed ways. While it is clear that energy use and air quality interrelationships merit careful attention, other important sector relationships have yet to be well understood. Land-use patterns determine mobility needs. Housing style, building patterns, and transportation infrastructure affect both mobility and energy service demands. Population growth itself will create significant requirements for water pumping and solid waste disposal. Emphasizing these integrated resource demand and impact questions is a major purpose of this chapter.

In many instances it may be possible to achieve multiple goals in a supportive manner. For example, energy-efficient mobility options can be engineered through conscious urban form choices. In other instances, the goals of transformation, energy efficiency, and air quality may conflict.

This chapter does not attempt to resolve conflicts between energy use and the achievement of other regional goals. Instead, its purpose is to illuminate key questions: Where do the policy linkages exist? Can interrelationships between land-use patterns, mobility, housing needs, energy, and environmental quality be

established? Where symbiosis exists, what policies are available at what level of public and private investment?

The chapter does not tell people what they must do with respect to energy use; nothing in this chapter creates new legal mandates for local governments or other regional governmental organizations. Rather, it identifies options to achieve energy goals, explains the interrelationships between energy and other policy choices, and provides methods to determine the energy impacts of policy decisions. It identifies a menu of approaches that can improve efficiency of natural resource use at regional and local levels. For any individual jurisdiction the choices may vary, but the menu can provide a guide to further review and choice at whatever level is appropriate. Developing an illustrative efficiency opportunity agenda is thus a final purpose of the chapter.

The scope of the Energy Chapter was narrowed, because of time and resource constraints, to focus on efficiency of energy use. This represents the type of activity over which local governments have the most control. Energy use was initially categorized into four major areas:

- Buildings and Appliances
- Land Use
- Movement of Vehicles, People, and Information
- Infrastructure (water, waste water, and solid waste)

Land-use and movement were consolidated in the evaluation stage. Major categories of energy users not considered in the Energy Chapter include agriculture, and air- and water-based transportation systems. In subsequent planning cycles, the scope of the Energy Chapter could be broadened.

The Energy Chapter of the RCP is supplemented by a Regional Energy Background Document. The background document is divided into four parts: Part I is an executive summary; Part II outlines current and future energy use and impacts; Part III identifies and evaluates efficiency opportunities; and Part IV presents implementation options.

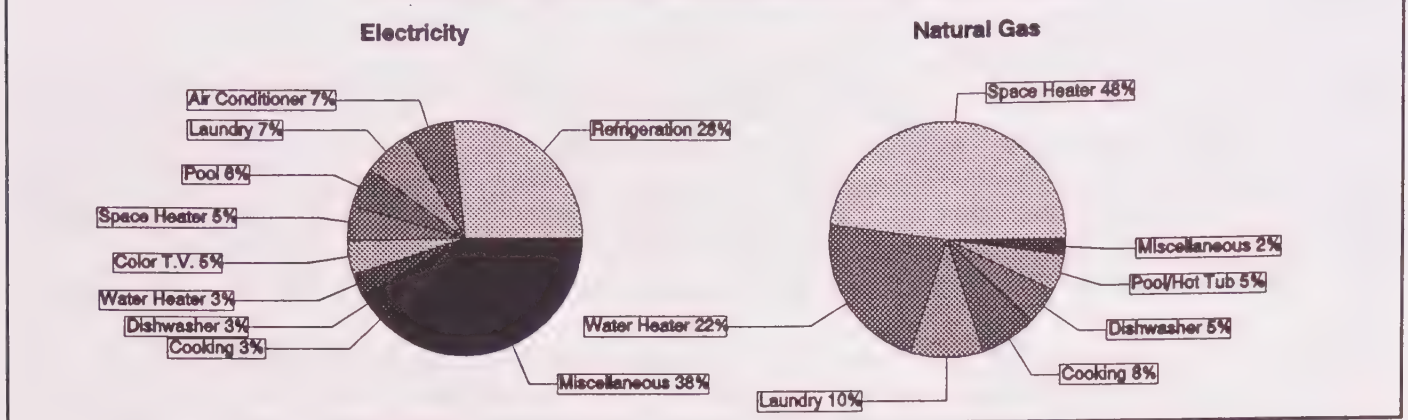
B. ENERGY USE: CURRENT

1. ENERGY SERVICE CHOICES

Although California residents purchase billions of units of energy each year, this quantity is not consumed directly as food, clothing, or shelter is consumed. Instead, energy is purchased because it can provide an essential or desired service—light, warmth, transport, or power. These basic "energy service" needs are what drive demand for energy.

Examples of energy demand categorized by various service choices appear in Figures 12-1 and 12-2. These charts show that 13 percent of SCAG's residential energy use is for space conditioning; keeping warm or cool. In the commercial and industrial sectors, lighting, boilers (heat), and motors (power) require a substantial percentage of energy.

FIGURE 12-1: SCAG 1990 RESIDENTIAL ENERGY USE

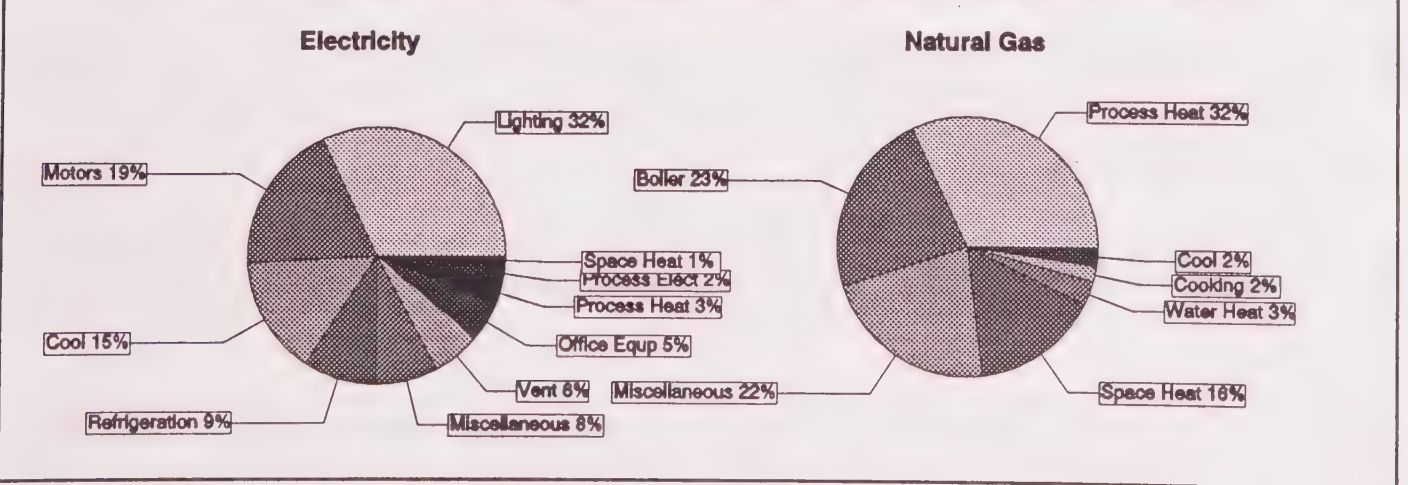


2. ENERGY DEMAND: SCAG ENERGY USE

The CEC quantifies the demand for electricity and natural gas by utility planning areas. The combination of Southern California Edison Co., The Los Angeles Department of Water and Power, and Burbank, Glendale, and Pasadena planning areas encompass the SCAG region (except for Imperial County). The transportation sector analysis is prepared for the Los Angeles Basin, which includes the six counties in the SCAG region.

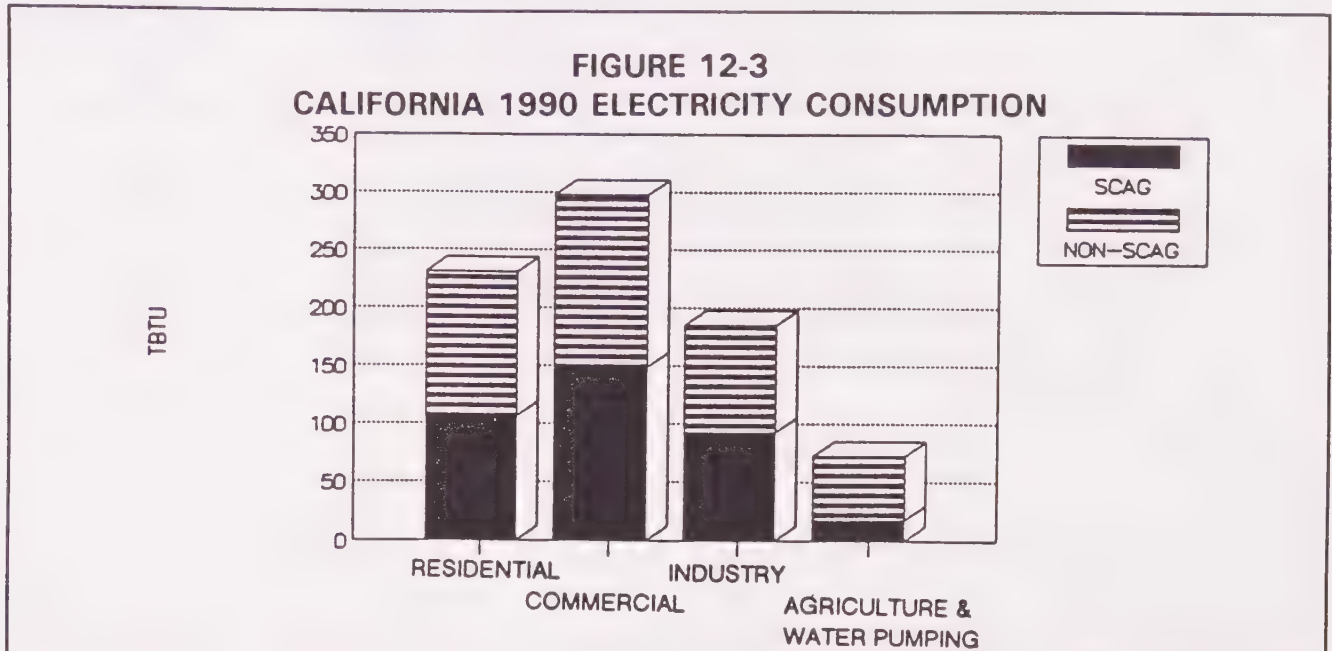
Although half of California's residents live in the SCAG region, energy use is less than half of the state's total energy consumption. This is partially due to the mild climate, utilities' implementation of energy savings programs, and the large amount of natural gas used for outside the SCAG region. Residential customers use 13 percent of the state's energy, commercial buildings use 10 percent, industrial processes use 28 percent, and the transportation sector uses 49 percent. Government is a large regional energy consumer.

FIGURE 12-2: SCAG 1990 COMMERCIAL AND INDUSTRIAL ENERGY USE



a. Electricity

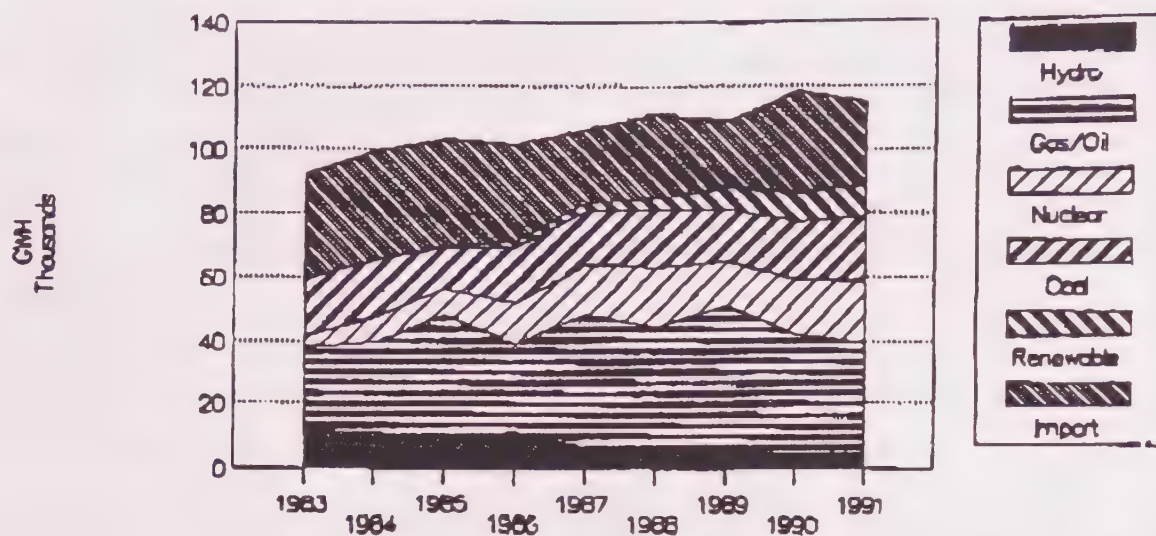
Residential, commercial, and industrial sectors are the main electric users (see Figure 12-3). The transportation sector is anticipated to use an increasing amount of electricity as electric cars come on line during the next two decades to help alleviate air quality problems.



Electricity is generated using a diverse set of resources. A considerable amount of electricity is generated outside the SCAG region and then transmitted into the region for use by final consumers. In 1990, electricity in the SCAG region was generated by the following resources: 29 percent natural gas; 15 percent coal; 4% oil; 14 percent nuclear; 4 percent hydro; 7 percent other renewable resources such as geothermal, wind, and solar; and 27 percent other imports from out of state.

The SCAG region has many potential resource options available to meet electric power needs during the next 20 years. Increased concerns for air quality and other environmental issues will require changes in existing electricity generation facilities and may affect the character, timing, and quantity of future resource additions. As Figure 12-4 shows, renewable resources have been gaining popularity. Since many of these renewables are used by small power producers rather than large electric utilities, growth depends greatly on favorable market conditions and the regulatory climate.

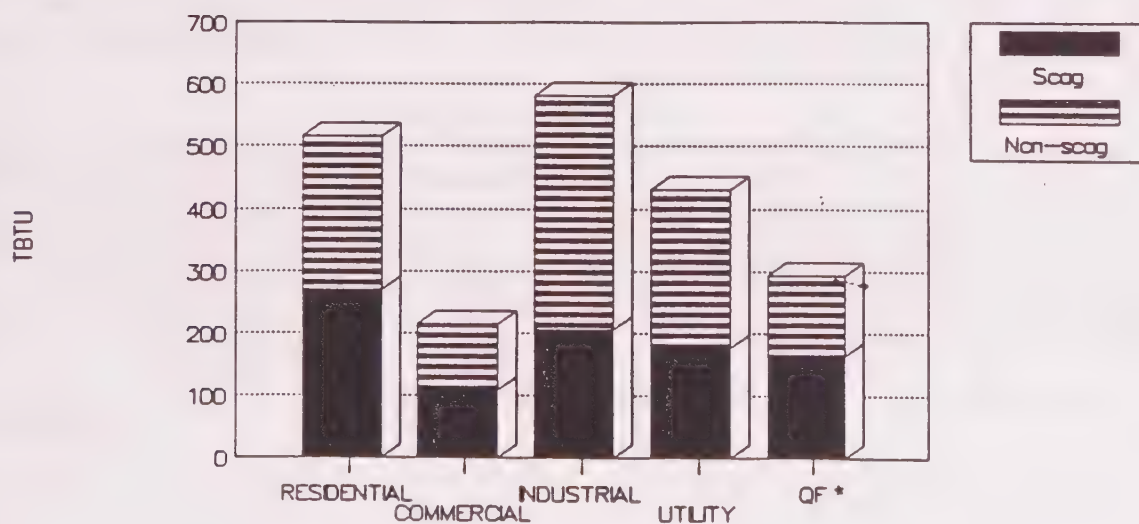
**FIGURE 12-4
SCAG ELECTRICITY RESOURCES**



b. Natural Gas

Natural gas is used in all sectors including the utility sector (see Figure 12-5). In recent years, utilities have increased their gas use because gas prices have been relatively low, hydroelectric power was limited in drought years, and air quality issues were pressing. Currently, a minimum amount of natural gas is used in the transportation sector. This fuel will, however, have an increasing impact as incentives are provided to encourage use of cleaner fuels in transit buses and fleet vehicles.

**FIGURE 12-5
CALIFORNIA 1990 NATURAL GAS CONSUMPTION**

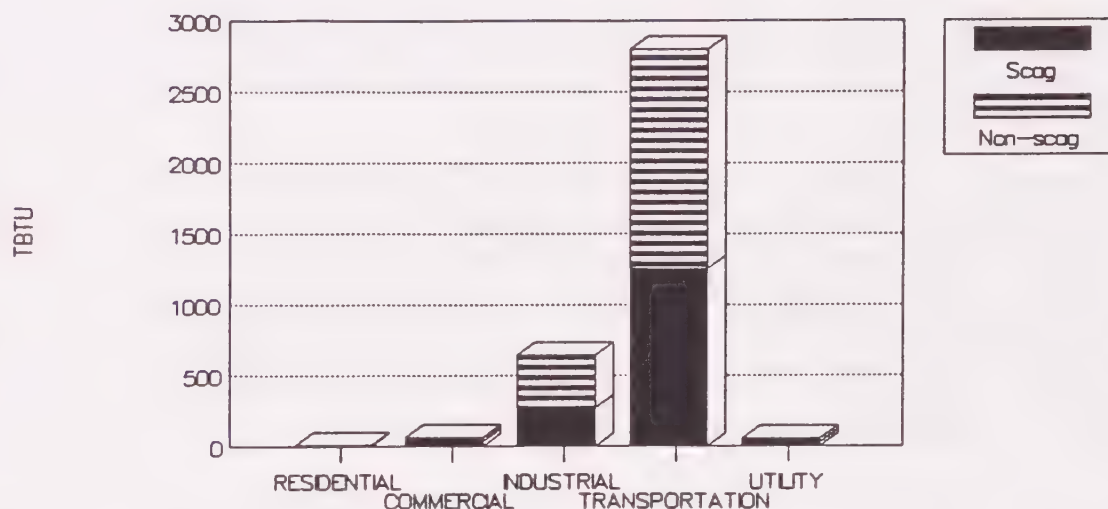


* Small power producers selling electricity to public utilities

c. Petroleum

The transportation sector uses by far the most petroleum (see Figure 12-6). On the other hand, electric utilities have used very little petroleum during the past decade. Utilities often find inexpensive imports more cost-effective than running their own fossil-fuel-powered plants. The industrial sector still uses a substantial amount of petroleum, although less than in previous years. Several types of industries have the capability to switch from natural gas to petroleum products as prices fluctuate. In future years, air quality standards in the SCAG region are expected to increasingly deter petroleum use by both the industrial and electric utility sectors.

FIGURE 12-6
CALIFORNIA 1990 PETROLEUM CONSUMPTION



C. ENERGY DEMAND: FUTURE

1. STATEWIDE CONTEXT

California is the fastest growing state in the nation. During the past 15 years, the state's population increased 33 percent. And compared to 1990 levels, California can expect 11 million new residents and 4.6 million new households by 2010. Real per capita income may increase by 27 percent and California's economy could expand in real terms by up to 3 percent per year. As a result, energy use will increase. By 2010 California will use an additional 105,500 GWh¹ of electricity to meet the needs of the state's added population. Peak demand will grow by more than 40 percent while annual electricity use will increase by more than 43 percent.

¹One gigawatt hour is one million kilowatt hours, or enough electricity for the annual needs of about 125 typical California homes.

What drives California's growing demand for energy? California's future long-term population and economic growth are the underlying causes of the state's growing need for energy. The key link in forecasting future energy use is between job creation and population growth, which are the basic functions of economic activity. A growing economy creates new jobs; new jobs attract people and people use energy. From 1990 to 2010, the Energy Commission forecasts that California's economy will grow by 2.9 percent per year. Southern California's economy will grow slightly faster than that of northern California. During this same period, about 3.3 million new jobs will be created in southern California.

2. ENERGY USE IN THE SCAG REGION: 2010

a. Electricity

By 2010, peak demand for electricity by consumers, businesses, and industries in the SCAG region is forecasted to grow by more than 11,000 MW. This represents a 44 percent increase over current peak demand. In the same period, the population in the SCAG region is expected to increase over 40 percent and total personal income will expand by more than 90 percent.

As stated previously, the SCAG region's strong economic and population growth is expected to continue despite the effects of the 1990s recession. Between 1990 and 2010, population and personal incomes are expected to grow at annual rates of 1.8 percent and 3.1 percent, respectively. The average annual growth rate in electricity use from 1990 to 2010 is anticipated to be 2 percent. Since summer demand for air conditioning drives peak in the SCAG region, peak demand will grow faster than base-load because economic and population development is occurring in the warmer portions of California. Riverside and San Bernardino counties in particular are expected to almost double in population during the next 20 years. Table 12-1 shows forecasts for overall electric consumption. This region represents 47 percent of California's electricity use.

The residential and industrial sectors grow more slowly than the commercial sector, so over time the commercial sector's share of electricity use becomes larger. Due to increased floor space and energy use per square foot, the commercial sector is the dominant sector with 58 percent growth from 1990 to 2000. The residential sector is a distant second with 26 percent of the growth. After 2000, the commercial sector will continue to grow faster than other sectors, but at a slower rate than in the immediate future.

Electricity use per household remains fairly flat from 1990 through 2005, but the makeup of that energy use changes. End uses affected by buildings and appliance standards such as space heat, air conditioning, and refrigerators/freezers consume less energy. These effects on the overall household electricity use are offset by a trend toward larger homes, larger refrigerators, more homes located in warmer climates (as illustrated by the growth in Riverside County), increased saturations of such items as clothes dryers and water beds, and significant growth in the miscellaneous appliance stock, which includes home computers. These offsets become more apparent after 2005 when residential electric use increases at a slightly faster rate.

In the commercial sector, most end-uses appear flat or declining over time. However, the office equipment end-use grows due to growing dependence upon computers, facsimile machines, printers, and other peripheral equipment, especially in office buildings. Cooling is the single largest growth area for peak demand, especially in the commercial sector. More buildings are being cooled, more buildings are being built in warmer climates, and the growth in office and miscellaneous equipment is impacting the cooling requirements in buildings through waste heat from equipment usage.

Table 12-1: Summary of ER-92 Electricity Demand Forecasts

	Energy Consumption (GWh)		
	1990	2000	2010
SCE	81,486	101,516	122,640
LADWP	22,997	27,250	31,005
BGP*	2,950	3,228	3,534
EV Adjust**	2	335	3921
TOTAL	107,435	132,329	161,100

	Peak Demand (MW)		
	1990	2000	2010
SCE	17,788	21,642	26,431
LADWP	5,311	6,435	7,241
BGP*	813	821	880
EV Adjust**	0	33	282
TOTAL	23,912	28,931	34,834

Source: 1992 Electricity Report, Appendix C, pp. C-30-31. and California Energy Demand, Vol 1, November 1993

* Burbank, Glendale, Pasadena Municipal Utilities

** EV Adjustment is CEC's ER94 Electric Vehicle Demand Forecast minus CEC's ER 92 Electric Vehicle Demand Forecast

b. Natural Gas

Natural gas is the second largest energy source in California. The SCAG region represents 44 percent of California's gas use. Natural gas demand is expected to increase slowly during the next 20 years. Table 12-2 shows gas use in the Southern California Gas Planning Region.

Table 12-2: Summary of Southern California Gas Planning Area Natural Gas Consumption Forecasts (mmcf/d)

Sector	1990	2005	2010
Residential	735	750	770
Commercial	272	383	407
Industry	432	576	600
Subtotal	1,439	1,709	1,777
Transportation	0	107	210
TEOR	501	861	860
Cogeneration	243	254	256
Utilities	468	811	952
Subtotal	711	1,065	1,208
Total Usage	2,651	3,742	4,055

Source: 1991 Fuels Report, Natural Gas Outlook, December 1991.

Transportation Source: 1993 Fuels Report, Natural Gas Outlook, November, 1993.

Natural gas is now the principal fuel for stationary users such as residential, business, industrial, and TEOR² consumers in the SCAG region. Natural gas use is expected to increase at a slower rate than economic and demographic activity because of the efficiency of use by new customers and the efficiency of new equipment. Natural gas demand by stationary end users is expected to grow by less than 1 percent per year.

Power plant electric generation has shifted toward the use of natural gas and away from petroleum. The environmental advantages of natural gas compared to petroleum make it the fuel of choice for both utilities and independent energy producers. Given that the natural gas supply is adequate and the price outlook is attractive, no significant change is expected in the preference for natural gas for electricity generation. Natural gas use for electricity generation is expected to grow more than 2 percent per year in the SCAG region.

c. Petroleum

Petroleum product fuel use is projected to continue to increase as shown in Table 12-3.

²Thermally enhanced oil recovery is the process of injecting steam into oil-holding geologic zones in order to increase the ability to extract oil by lowering its viscosity.

Table 12-3: Summary of Total Petroleum Product Demand (thousand gallons per day)

	1992	2000	2010
Gasoline			
Autos	10,686	9,882	9,854
Light/Medium Trucks	4,087	4,294	4,672
Heavy Trucks	333	193	36
Motorcycles	37	43	50
Total	15,143	14,412	14,612
Light Distillates			
Autos	129	22	4
Light/Medium Trucks	35	6	1
Heavy Trucks	2,074	2,315	2,632
Urban Bus	72	72	72
Aviation	4,482	4,784	5,241
Commercial	10	11	11
Industry	8	8	9
Powerplants	54	94	478
Total	6,864	7,312	8,447
Heavy Distillates			
Ships	3,018	3,300	3,300
Industry	0	0	0
Powerplants	0	0	0
Total	3,018	3,300	3,300
Total Petroleum Consumption (all types and uses)	25,025	25,024	26,359

Note: Commercial and industrial consumption from CEC spreadsheet model. Power plant projections from SCAQMD 1991 AQMP, Appendix IV-D. Shipping projections assume 10 percent growth from base year values (PIIRA DATA).

Transportation is by far the largest component of petroleum product demand. The projections show gasoline use continuing to increase, but at a somewhat reduced annual rate. Vehicle Miles Traveled (VMT) is a primary determinant of gasoline demand.

Gasoline demand can be determined by dividing miles traveled by fuel economy (miles per gallon). The average fuel economy of gasoline vehicles dramatically increased in the 1980s, as the efficiency of new cars increased and these cars replaced cars in the existing fleet. Future growth in average fuel economy is projected to be less, in conjunction with little growth in fuel prices. The forecast assumes the average efficiency of new cars will increase only 13 percent and the efficiency of new light-duty trucks will increase 8 percent. The average fuel economy of California vehicles will also increase to the extent new vehicles replace vehicles of lower fuel economy.

D. ENERGY USE IMPLICATIONS

Infrastructure requirements and environmental impacts resulting from energy use are related directly to the level of energy consumption for the three principal energy forms—electricity, natural gas, and petroleum products. Potential impacts are examined for these major energy sources in the following sections.

1. ELECTRICITY

Meeting the electricity needs of rapid population growth, industry and a new and changing economy will pose challenges. In the past, California has confronted the challenges of tight energy supplies and rising energy costs resulting from the OPEC oil embargo in the early 1970s and the Iranian oil crisis in 1979. From those experiences the state has learned a great deal and today it is well prepared to ensure that electricity supplies will remain adequate through 2010³

a. Infrastructure Requirements

The utilities within the SCAG region will have varying needs for new resources through 2010. These needs stem in part from growth in electricity use due to population growth and an expanding economy. The retirement of many older fossil fuel-fired power plants will also add to the region's resource needs.

In meeting the resource needs for the utilities operating within the region, a mix of both demand-side and supply-side options will be used. Demand-side options include increased energy efficiency, conservation measures, and load management. Supply-side options include refurbishment of existing power plants, new generation construction, and electricity purchases from utility and non-utility sources. Under both the California Public Utilities Commission (CPUC) and CEC policies, plans for future resource additions seek to minimize the social and private costs of meeting future needs.

The ability of the electricity system to support SCAG's growing economy will depend on how it addresses the environmental challenges of achieving air quality goals. As a result of increasing concern over air quality, new regulations will affect the operation and expansion of the electricity sector. To a large extent, the cost of complying with air quality regulations will influence electricity technology development, resource choices, and the fuel mix of our generating resource base.

Based on the Energy Commission's recently adopted *1992 Electricity Report (ER 92)*, by 2011 the baseline resource plans for SCAG-region utilities (includes Southern California Edison, Los Angeles Department of Water and Power, Burbank, Glendale, Pasadena and Imperial Irrigation District) forecast a total need for 41,400 MW of electricity resources. The forecasts include 7,600 MW of uncommitted Demand Side Management (DSM) programs and 5,700 MW of other pending and uncommitted generation additions by 2011. Table 12-4 summarizes the projected levels of electricity DSM that the CEC believes ought to be added as part of the least-cost integrated resource planning strategy for the southern California region. These DSM resources are beyond those included within the baseline demand forecast, and represent the CEC's identification of additional cost-effective DSM program savings that are preferred to any new generation resource addition.

³ 1992 Electricity Report, California Energy Commission, P104-92-001, January 1993.

Table 12-4: Summary of Demand-Side Resource Additions

	Energy Savings (GWh)			Capacity Savings (MW)		
	1996	2003	2011	1996	2003	2011
Southern California Edison						
Energy Efficiency	1,739	9,081	16,887	342	1,975	4,034
Dispatchable Loads	0	0	0	978	1,167	1,399
Losses Saved	141	736	1,368	107	254	440
TOTAL	1,880	9,817	18,255	1,427	3,396	5,873
Los Angeles DWP						
Energy Efficiency	531	1,898	3,521	165	641	1,215
Dispatchable Loads	0	0	0	133	133	133
Losses Saved	72	256	476	40	104	182
TOTAL	603	2,154	3,997	339	878	1,530

Source: 1992 Electricity Report, Table 5-1, p. 5-13.

Table 12-5 identifies generation facility additions/repowerings found cost-effective in the base case. The base case electricity plans include existing, committed, and some future uncommitted resource additions⁴. While the current electricity procurement process cannot ensure that these specific facilities will be added, these additions would reduce utility and social costs. Some portion of the 10,000 MW of new generating capacity needed may be provided through advanced construction technologies and some portion may be outside the region. This includes the repowering of existing oil and gas-fired units with cleaner burning combined cycle units up to about 3,000 MW. Up to about 630 MW of geothermal and wind resources are projected to be cost-effective resource additions by 2011.

Additional transmission lines and facilities will also be required to ensure delivery of energy. Planned transmission projects include Los Angeles Department of Water and Power's committed 500 kV Mead-Adelanto line (\$275 million) and Imperial Irrigation District's proposed 500 kV Southern Arizona Transmission Project (\$150 million). Both projects, if constructed, will offer 2,200 MW of additional transfer capability from the southwest to California.

⁴ Committed resources generally have all necessary approvals or have a high probability of success. Uncommitted resources have been determined under the CEC's ER 92 process to be cost-effective resource additions. These resources' costs set a ceiling for non-utility suppliers' contracts that may replace or defer the specific resources in the base case.

Table 12-5: Summary of Cost-Effective Electrical System Generation Additions

Year	Addition	Capacity Added (MW)
1997	Geothermal IDR (Set-Aside)	50
1997	Geothermal IDR (Non-Set-Aside)	50
1997	Wind IDR (Set-Aside)	25
1997	Wind IDR (Non-Set-Aside)	25
1998	San Bernardino 1 & 2 Repower IDR	400 (274 MW Biddable)
1999	Geothermal IDR (Set-Aside)	100
1999	Geothermal IDR (Non-Set-Aside)	100
2020	Huntington Beach 3 Repower	600
2002	Coolwater 1 & 2 Repower	239
2006	Alamitos Unit 1 Repower	582
2008	Alamitos Unit 2 Repower	582
2009	Huntington Beach 4 Repower	600
2011	Geothermal Unit	230

b. Environmental Impacts

Since the great majority of environmental impacts from power plants are air emissions from the combustion of natural gas, impacts are described in the natural gas discussion below.

2. NATURAL GAS

As described earlier, current natural gas demand forecasts envision regional natural gas demand rising from about 2,500 mmcf/d to 3,600 mmcf/d, or about 40 percent increase during this period. Table 12-6 provides greater sectoral specificity for this regional forecast.

a. Infrastructure Requirements

The great majority of natural gas supplies meeting demand in California are from out of state, primarily the southwest US and Canada. Only about 10 percent of the state's end-use natural gas demand is served with instate natural gas. Evaluation of the natural gas supply/demand balance and the need for new resource

additions, either gas supplies or the pipeline capacity required to deliver these supplies, is performed as part of the CEC's biennial *Fuels Report* proceedings.

The CEC currently sees ample natural gas resources and increased capacity, resulting from additional pipeline construction in the past five years, to deliver natural gas supplies into California. Few additions to natural gas delivery infrastructure will be required; the additions will mainly augment storage capacity to allow seasonal peak requirements to be met, such as on cold winter days.⁵

b. Environmental Impacts

The retail users of natural gas (residential, commercial, and industrial) have two categories of emissions: (1) those resulting from fuel combustion, and (2) those resulting from the production processes employed in business and household activities. NO_x and SO_x largely stem from fuel combustion, while ROG_s generally stem from both the use of organic chemicals and vehicle emissions. Current emission models project fuel combustion emissions for retail users directly from the combustion of natural gas, with the addition of emission control requirements established by various air quality rules. Power plant users of natural gas have emissions projected, assuming NO_x controls as required by SCAQMD's Rule 1135 and similar rules from other districts regulating SCE's powerplants. The non-combustion projections are driven by the level of economic activity of the sector, again modified by any District regulations. Table 12-6 provides a summary of the emissions stemming from natural gas usage in southern California.

3. PETROLEUM PRODUCTS

Petroleum impact assessment is the most complex of the three primary energy forms, because there are both direct and indirect environmental consequences of its use, and because the infrastructure analyses required to translate regional changes in consumption into regional changes in infrastructure are highly involved. In addition, unlike electricity or natural gas, petroleum product demand spans a considerable range of distinctly different products, from gasoline to bunker fuel for ships.

a. Infrastructure Requirements

The infrastructure associated with petroleum fuels is much more complex than that connected to the traditional stationary usage of electricity or natural gas. Since petroleum products are liquids, they are commonly moved in bulk shipments, not through pipelines. California's major use of imported crude oil from Alaska and foreign sources, and its relative geographic isolation from the Gulf Coast production and refining regions, have reduced the degree to which pipelines are an important mechanism in California for moving either crude or refined products compared to other regions of the nation. In the future, the CEC sees California becoming more dependent upon foreign sources of crude since Alaska production is already beginning to decline with the exhaustion of existing North Slope fields.

⁵1991 Fuels Report California Energy Commission, P300-91-018, December 1991. Principal Authors: Jairam Gopal and Constance Leni.

Table 12-6: Summary of Natural Gas Emissions Projections (average tons/day)

Sector/Year	NOx	SOx	ROG
Residential			
1987	32	0.2	0.7
2000	24.9	0.2	0.7
2010	26	0.2	0.8
Commercial			
1987	23.2	1.3	1.5
2000	21.9	1.6	1.7
2010	23.2	1.7	1.9
Industrial			
1987	41.6	0.4	9.9
2000	38.1	0.5	11.6
2010	42.4	0.5	12.4
NG Vehicles			
1987	0	0	0
2000	4.6	0.3	5.2
2010	6.1	0.6	5.2
TEOR			
1987	19.9	0	1.7
2000	16.3	0	3.8
2010	16.2	0	3.8
Powerplants			
1987	40	0.3	1.28
2000	13.41	0.48	2.76
2010	14.62	0.51	3.59
Total Activity			
1987	156.7	2.2	15.08
2000	119.21	3.08	25.76
2010	128.52	3.51	27.69

Source: CEC Staff emissions projection models.

The infrastructure consists of several distinct stages involved in both the production and usage of petroleum products: (1) production and transportation for refining, (2) refining, (3) distribution after refining, and (4) infrastructure required for vehicle usage. Chapter 4 of the Energy Background Document reviews the first three stages, but emphasizes that the majority of infrastructure needs for petroleum fuels will be related to transportation network improvements. These are discussed in detail in the Background Document, and summarized in Table 12-7.

Table 12-7: Summary of Transportation Infrastructure

<i>Element</i>	1990	2000	2010
Highways			
Lane Miles	7,007	7,700	8,445
HOV Miles	105	1,000	1,739
Transit			
Vehicles	2,294	2,500	2,835
Route Miles	16,492	17,000	18,062

Source: All information concerning baseline transportation infrastructure additions are developed from internal SCAG working documents prepared for the Mobility Element.

b. Environmental Impacts

Most of the environmental consequences of petroleum usage come from combustion of refined petroleum products in cars and trucks. Emissions from the refinery process and the distribution of petroleum fuels across the region provide small, but still significant, components of overall petroleum emissions. In the effort to control emissions in the region, SCAQMD considers each of these source categories to be worth regulating in the path toward achievement of ambient standards.

Table 12-8 presents emissions from the combustion of petroleum fuels. Transportation-related emissions resulting from combustion of liquid fuel have been prepared using the most recent ARB methods. Emissions from petroleum product use occur both in the actual combustion as well as in the handling and transfer of these liquid products. Emissions from fuel combustion are prepared using the same model described above in the stationary use of natural gas, but the driving factor is petroleum fuel use.

Table 12-8: Summary of Petroleum Combustion Emissions (average tons per day)

	NO _x			ROG		
	1990	2000	2010	1990	2000	2010
Gasoline						
Automobiles	319	172	104	430	237	121
Light/Medium Trucks	143	117	105	142	87	51
Heavy Trucks	15	6	3	6	2	1
Motorcycles	2	2	3	7	7	9
Subtotal	479	297	215	585	333	182
Light Distillates						
Automobiles	6	1	1	1	0	0
Light/Medium Trucks	1	0	0	1	0	0
Heavy Trucks	207	191	226	30	32	40
Transit Buses	10	10	11	2	2	2
Aviation	16	19	21	18	17	18
Commerce	39	41	42	1	2	2
Industry	18	20	21	1	1	1
Powerplants	6	1	6	0	0	1
Subtotal	303	284	328	55	54	63
Heavy Distillates						
Ships	34	37	37	1	1	1
Industry	0	0	0	0	0	0
Powerplants	0	0	0	0	0	0
Subtotal	34	37	37	1	1	1
Total Emissions	816	618	580	641	388	246

Note: Ship and aviation emissions from SCAQMD, 1991 AQMP, Tech Report V-C. Commercial and industrial emissions from CEC spreadsheet model.

E. EFFICIENCY OPTIONS ASSESSMENT

1. INTRODUCTION

While energy supplies can be obtained in adequate quantities to meet needs projected in the previous sections, options exist to reduce the costs, environmental impacts, and security risks projected use will entail. This section outlines a range of resource efficiency options under four broad categories of local/regional decision-making. From this large set, a screening process is used to select a set of efficiency opportunities for detailed evaluation described in subsequent sections.

2. COMPREHENSIVE EFFICIENCY OPTIONS

Energy efficiency options span a variety of technical and policy measures. Rather than being exhaustive, this chapter illustrates an evaluation of the integrated consequences stemming from introduction of a comprehensive set of potential measures. The concept shows that measures generally considered to be derived from energy policy have consequences in a far broader set of forums. Again, recognition of the interconnections among segregated policy processes is a central goal of the chapter.

As noted previously, the energy efficiency options were considered under four broad categories, described below. While these categories are not mutually exclusive, they historically have been examined in different forums by different policy-makers, frequently in different agencies with focused or single-purpose missions.

a. Building and Appliances

A large number of technical measures exist to improve the energy efficiency and the environmental consequences of using energy for buildings and appliances that serve human needs. California has been a pioneer in developing energy efficiency regulations, utility retrofit programs, and public assistance programs to improve the energy efficiency of buildings and appliances within the state. As a result, the state now consumes about 15 percent less electric energy per unit of economic activity than it did in 1975, when this effort began. Additional efficiencies are expected and are embodied within the long term baseline demand forecasts.

b. Land-Use

Land-use efficiency opportunities relate primarily to the development of land to support residential, commercial, and industrial growth. These opportunities occur in a wide range of scales, from development of new cities to individual development projects. Measures classified here may have considerable consequences for building energy demand, community infrastructure, and transportation. For example, higher-density attached housing generally is more energy efficient than detached single-family homes because of common sidewalls, which reduce the consumption of electricity and natural gas used for space conditioning. Also, by placing residents closer together, transit options become more feasible and transit use increases as routes can be closer to greater numbers of people. Guiding development to take advantage of existing transmission and distribution facilities and infill opportunities, balancing housing with job-creating commercial developments, and incorporating other site design options have a variety of energy-demand and infrastructure consequences.

c. Movement of People, Material, and Information

Transportation options address four broad groups of measures: (1) increased efficiencies in the energy and infrastructure required to continue use of personal automobiles, (2) mode shifts to transit as a substitute for the personal car, (3) other transportation demand management options to reduce travel altogether, and (4) system management measures to improve capacity use.

d. Infrastructure

Infrastructure, as analyzed in this category, includes water supply, waste-water disposal, and solid waste disposal. Efficiency options included in this category consist of water conservation, improved efficiency in pumping, and waste recycling programs that reduce the amount of waste in the disposal system.

3. COMPREHENSIVE EFFICIENCY OPTIONS

a. Screening Options

Among the large numbers of potential energy efficiency options that could be assessed, a manageable number of key options were identified through a two-stage screening process. In Stage One of this process, a long list of options was constructed within each of the four categories, constrained only by judgments that potential energy, environmental, or infrastructure impacts could be significant when implemented. In Stage Two, a more intensive, semi-quantitative screening process was used that examined each option for nine criteria:

- Ability to quantify impacts
- Energy reduction potential
- Rate of energy reduction
- Cost effectiveness
- Environmental impacts
- Technical feasibility
- Enforceability
- Energy security impacts
- Equity impacts

The purpose of these criteria is to identify measures with larger impacts, or ones with greater net benefits, from multiple-decision perspectives. Throughout the process, the goals included ensuring that energy service needs were met as economically and efficiently as possible; thus absolute "conservation, i.e. doing without", was not an intention. The ability to be enacted by regional or local government, or at least supported in state or federal forums, was examined later in the process.

During Stage One, the list was narrowed to 55 intermediate options. These 55 options were then subjected to an evaluation using the nine criteria listed above. The results are shown in Table 12-9.

Table 12-9: Intermediate Options

Option	Score	Relative Rank
Buildings and Appliances:		
<i>Standards and Regulations</i>		
• Title 24 Enforcement	93	5
• Supplemental Building Standards	103	1
• Existing Building Energy Efficiency Ordinance	97	4
• Solar Access Ordinance	83	11
• Local Appliance Standard	93	5
<i>Incentive Programs</i>		
• Collaborative Process Participation	85	10
• Expedite Permits	83	11
<i>Design Assistance</i>		
• Design Assistance for Government Buildings	89	8
• Design Assistance for Private Buildings	93	5
• Neighborhood Energy System	89	8
<i>Public Information and Labeling</i>		
• Promote Efficient Behavior	103	1
• Home Energy Rating System	99	3
• SCAG Design Competition	83	11
Land Use:		
<i>Regional Scale</i>		
• Network of Compact Large Cities	87	8
• Network of Compact Small Cities	87	8
• Subregional Jobs/Housing Balance	75	10
• Regional Urban Expansion Limit Lines	71	11
• Regional-scale Telecommuting & Teleconferencing	87	8
<i>City Scale</i>		
• Compact and Contiguous Development Pattern	83	9
• Large Mixed-Use Centers	95	5
• City-wide Jobs/Housing Balance	93	6
<i>Sub-City Scale</i>		
• Mixed Residences & Work sites	103	1
• Dispersed Shops & Services	101	2
• Concentrated Shops & Services	103	1
• Housing and Jobs Near Transit	93	6
• Services Near Transit	97	4
• Compact Housing	93	6
• Energy Efficient Street Design	83	9
<i>Project Scale</i>		
• Energy Efficient Landscaping and Site Design	91	7
• Mixed Residences, Shops & Services, & Work sites	103	1
• Reduce Auto Parking & Improve Pedestrian, Bike, and Transit Access	99	3

Option	Score	Relative Rank
<u>Movement of People, Material, and Information:</u>		
<i>Improvements in Vehicles or Fuels</i>		
• Vehicle Technology	104	3
• Fuel Alternatives	101	4
<i>Reducing VMT</i>		
• Rideshare Programs	107	2
• Transit (Bus/Rail)	93	6
• Park & Ride/Shuttle Systems	90	7
• Telecommuting	96	5
• High Occupancy Vehicle (HOV) Bus Lanes	87	8
• Parking/Congestion Pricing	90	7
• Bicycle/Pedestrian Improvements	112	1
<u>Infrastructure:</u>		
<i>Water</i>		
• Reduce Consumption of Water	109	1
• Use More Efficient Technology	89	8
• Reduce Length of Lines	87	9
<i>Waste Water</i>		
• Reduce Consumption of Water	101	5
• Use More Efficient Technology	89	8
• Reduce Length of Lines	87	9
<i>Solid Waste</i>		
• Increased Composting	103	3
• Zoning for Recycling	89	8
• Improve Efficiency of the Recycling Process	105	2
• Variable Rates for Garbage Collection		
• Improve Efficiency of Garbage and Collection Processing	103	4
• Waste to Energy	97	6
• Consumer Source Reduction	79	10
• More Durable Consumer Products	91	7
• Reuse of Commercial and Industrial Material	97	6
• Reuse of Household Items	97	6

b. Selecting Efficiency Opportunities

In Stage Three of the screening process, the four highest-ranked options in Buildings and Appliances and in Infrastructure, as shown in Table 12-9, were selected for further analysis. All of the options in Movement of People, Material, and Information were selected for further analysis, although several were combined and refined. Many of the measures in Land Use were combined and incorporated with increased transit—this was done because of the close interconnection between land use and transportation, and because of the methodological difficulties and lack of data to measure the energy impacts, on a regional scale, of subtle local differences in land use. The options under Land Use and the Movement of People, Material, and Information were then combined into one category, Land-use and Mobility, to reflect this close interrelationship. The

outcome of Stage 3 was the selection of 17 options for detailed analysis these are summarized in the following sections.

● **Buildings and Appliances:**

1. Supplemental Building Standards—Develop a regional building standard that supplements Title 24 and responds to the unique conditions of southern California. These standards address such issues as HVAC ducts, solar pool heating, building and roof color, day-lighting, and building commissioning (verifying that the HVAC and lighting systems in new buildings are operating properly).

2. Public Awareness Campaigns—Promote energy efficient behavior through public awareness campaigns. The types of behavior that would be promoted include using efficient lighting and refrigerators, maintaining residential HVAC systems, behavioral changes such as turning off lights when not needed, using solar water heating, and using energy efficient office equipment.

3. Home Energy Rating System—Implement a home energy rating system and an associated energy efficiency mortgage program. The rating system would involve a short inspection of the house, a computer-generated rating based on the inspection, and a set of recommendations for improving efficiency.

4. Existing Building (Retrofit) Ordinance—Address existing building stock through energy conservation ordinances that apply at the time a building is sold or leased. These ordinances could address such issues as ceiling insulation, pipe and duct insulation, water heater jackets, and low-flow devices.

● **Land Use and Mobility:**

5. Vehicle Efficiency Standards—Adopt state standards, through the DRIVE+ process,⁶ that call for increased vehicle efficiencies. These standards, which deal with fleet fuel efficiency, are already included in federal and state statutes.

6. Fuel Quality—Implement requirements for using alternative fuels such as oxygenated gasoline, flexible fuel vehicles, alternate fuel vehicles, and electric vehicles. These standards have been promulgated by the California Air Resources Board.

7. Increased Vehicle Occupancy—Implement ride sharing, park and ride, and high-occupancy vehicle (HOV) and bus lanes. The intent is to increase the average vehicle occupancy from the current level of about 1.2 persons per vehicle.

8. Telecommuting—Promote telecommuting programs that reduce the number of trips per day per employee, with potential net reductions in congestion and air emissions. These programs include measures to encourage people to work at local telecommuting centers or at home.

⁶DRIVE+ stands for Demand-based Reductions in Vehicle Emissions Plus Improvements in Fuel Economy; the program uses sales taxes as incentives or disincentives.

9. Pedestrian and Bicycle Emphasis—Provide pedestrian and bicycle facilities within a pattern of compact, mixed-use, transit-oriented development. The intent is to replace automobile trips that are five miles or less.

10. Transit and Land-Use Emphasis—Provide increased transit facilities within a pattern of compact, mixed-use, transit-oriented development. The transit modes include bus, light rail, commuter rail, and scheduled shuttle service. The more compact land-use patterns will also produce savings in embodied energy and energy used for operations of the buildings.

11. Congestion Pricing—Charge more for automobile travel that takes place at times of high congestion as a way of distributing travel over time and encouraging transit use. This is typically implemented through toll facilities on major commuter corridors, either during peak commute periods or 24 hours per day.

12. Parking Pricing—Charge more for parking in congested destinations as a way to reflect the true cost of providing parking.

13. Energy-Efficient Landscaping and Site Design—Encourage water-conserving landscaping, site buildings to take advantage of prevailing winds, and use landscaping for shading. This measure also will produce water savings.

• **Infrastructure:**

14. Reduction of Water Consumption—Reduce water consumption to decrease the energy needed for water and waste-water pumping and treatment. In addition to reducing water and energy demand, this measure also reduces the amount of waste water that must be collected and treated.

15. Increased Composting—Increase composting as a means to reduce energy needed to transport and process solid waste. This approach is very efficient because backyard composting requires virtually no energy. This measure also reduces the need for landfill.

16. Improved Efficiency of the Recycling Process—Increase the efficiency of the processes used to collect and process recycled material. The improvements that could be made include co-collection of trash and recyclables, using energy-efficient vehicles, and using efficient routes.

17. Variable Rates for Garbage Collection—Implement a variable rate system that would encourage reductions in waste generation and encourage composting. The intent is to have a relatively low rate for a level of basic service with an escalating rate for additional garbage cans or bags.

F. EFFICIENCY OPPORTUNITY EVALUATION

1. EVALUATION METHODOLOGY

The 17 opportunities identified through the screening process were evaluated for energy, air quality, and infrastructure impacts. To accomplish this, a significant effort was invested to develop quantitative descriptions of the efficiency opportunities. Additionally, estimates of penetration of measures were required along with quantification of consequent impacts upon specific economic sectors used in the baseline forecast. A series of forecasting and impact projection models developed at the CEC or adapted from the work of others were used to complete the latter task. The quantitative description of options is found in the Energy Background Document. In fact, one primary objective in the energy analysis was to develop and describe analytic steps and modeling tools necessary for a thorough evaluation of efficiency options from an integrated perspective.

2. EVALUATION RESULTS

Results of the evaluation are presented for 2010 in Table 12-10. The opportunities identify a range of outcomes from energy consumption and environmental impact air emission perspectives. Results also change over time. The Energy Background Document provides detailed results for 2000 and 2005. These results show that some measures have greater near-term impacts, and would appear to be more effective if rapid change was desirable. Overall agenda implementation could result in a savings in 2010 of 24,000 GWh of electricity and 1,300 million therms of natural gas. A total of 530,000 billion BTUs could be saved with resulting NO_x and ROG reduction totaling 40,000 and 31,000 tons per year, respectively.

It is important to read the notes immediately following Table 12-10 to interpret the table accurately. Also, it is important to note that the results are illustrative—somewhat different results could be produced with changes in the many assumptions that went into the analysis; these are described in the Energy Background Document.

Measure #5, Vehicle Efficiency Standards, showed the highest energy savings in 2000 and the second highest savings in 2010. Although the region could not implement unilaterally, this high result is not surprising, considering the measure directly affects one of the major users of energy, the private automobile. This measure also showed the highest benefits in emissions improvements for NO_x, SO_x, and ROG.

Measure #2, Public Awareness Campaigns, achieved the second highest energy savings in 2000 and first in 2010. The reasons for its high showing are that it is actually a collection of a number of concepts under a common strategy, the measure potentially affects some percentage of all new and existing buildings, and the measure assumes some significant changes in human behavior.

Measures #11 and #12, Congestion Pricing and Parking Pricing, were in third place in 2000 until Fuel Quality began to have a more significant impact and captured third place in 2010. The two pricing strategies were combined because the available methodologies and data did not enable the analysis to distinguish between the two. These combined measures also scored quite high in reducing emissions.

Measure #6, Fuel Quality, was in fourth place in 2000 and third place in 2010. The major reason for its improvement by 2010 probably was the continued increase in electric cars, which operate quite efficiently compared to the internal combustion engine. This measure produced the second highest savings in emissions.

Measure #10, Transit and Land-Use Emphasis, was in fifth place in all three years. This is a result of both a shift from automobiles to transit and an energy savings due to increased densities. This measure probably will have an increasing relative impact after 2010 because land-use patterns take some time to have produce an energy benefit.

Measure #7, Increased Vehicle Occupancy, was in sixth place in energy savings in all three years. This measure also rated quite high in reducing emissions.

Table 12-10: Energy Savings and Displaced Emissions: 2010

	Measure	Electricity GWh	Natural Gas Million Therms	Gasoline Million Gallons	Diesel Million Gallons	CNG Million Gallons	Methanol Million Gallons	BTU Billions	NOx Tons	SOx Tons	ROG Tons
1	Supplemental Bldg Standards	104.456	8.551					1,211.8	30.57	0.80	1.01
2	Public Awareness Campaigns	19,347.413	1,134.721					179,543.5	4,319.72	121.10	134.09
3	Home Energy Rating System	70.687	5.744					815.8	19.47	0.42	0.63
4	Existing Bldg Ordinance	742.624	28.811					5,417.2	127.67	4.40	3.67
5	Vehicle Efficiency Standards			1,093.0				136,625.0	13,252.63	1,318.16	12,317.02
6	Fuel Quality	(5,710.102)		1,867.0		(155.0)	(1,111.0)	55,625.0	10,915.35	1,071.98	10,088.92
7	Increased Vehicle Occupancy	183.016		127.0		5.0	38.0	21,875.0	1,937.08	193.16	1,802.75
8	Telecommuting	73.206		53.0		2.0	16.0	9,125.0	808.59	80.64	752.68
9	Pedestrian and Bicycle Emphasis	36.603		19.0		1.0	6.0	3,375.0	295.65	29.47	274.84
10	Transit and Land-Use Emphasis	1,115.976	128.370	124.0		5.0	37.0	41,599.1	2,549.54	217.11	1,791.26
11/12	Road & Parking Pricing	475.842		294.0		13.0	87.0	50,875.0	4,493.02	447.93	4,179.03
13	Landscaping and Site Design	4,761.000						16,258.8	238.05	14.28	0.00
14	Reduce Water	3,073.000						10,494.3	153.65	9.22	0.00
15	Increase Composting				6.5			894.6	478.92	19.76	84.54
16	Improve Efficiency of Recycling				4.0			559.1	299.34	12.35	52.84
17	Variable Rates for Garbage Collection				3.2			447.3	239.46	9.88	42.27
TOTALS		24,273.721	1,306.197	3,577.0	13.8	(129.0)	(927.0)	534,741.5	40,158.70	3,550.66	31,525.55

To accurately interpret this table, see notes on the following page.

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Notes to accompany Table 12-10:

1. The energy savings as expressed in the columns are for the year indicated in the title line of the table and assume that the implementation of the various measures begins in 1995.
2. CNG (compressed natural gas) and methanol are expressed in millions of equivalent gallons of gasoline.
3. Electricity is converted to BTUs using a relationship of 3415 BTU per kWh.
4. Natural gas is converted to BTUs using a relationship of 0.1 million BTU per therm.
5. Gasoline is converted to BTUs using a relationship of 125,000 BTU per gallon of gasoline.
6. Diesel is converted to BTUs using a relationship of 5.8 million BTU per barrel of Diesel fuel.
7. CNG and methanol are converted to BTUs in the same manner as gasoline because they are expressed in equivalent gallons of gasoline.
8. The analysis of Measures 5 through 12 is interconnected:
 - Measure 6 assumes that Measure 5 is in place.
 - Measures 7 through 12 assume that Measures 5 and 6 have been implemented; the numbers in the columns for Measures 7 through 12 represent the savings after 5 and 6 are in place.
 - Measures 11 and 12 are the additional savings if pricing mechanisms are implemented along with Measures 7 through 10.
9. The NO_x, SO_x, and ROG are calculated using the following emissions factors:

	NO _x	SO _x	ROG	units
Electricity	0.5	.003	negligible	tons/GWh
Natural Gas				tons/million therms
Residential	2.774	.109	.036	
Commercial	6.570	.292	.438	
Gasoline				tons/million gallons
2000	18.068	1.237	22.184	
2005	15.097	1.222	16.727	
2010	12.125	1.206	11.269	
Diesel				tons/million gallons
2000	82.493	3.537	13.954	
2005	78.212	3.294	13.503	
2010	73.930	3.051	13.051	
CNG				tons/million gallons
2000	16.746	1.144	20.667	
2005	13.537	1.097	15.230	
2010	10.328	1.049	9.793	
Methanol				tons/million gallons
2000	11.540	.807	14.819	
2005	10.197	.854	11.655	
2010	8.853	.900	8.490	

The highest-ranking measures should not be considered the winners to the detriment of other lower-ranking measures. The SCAG region is very large and diverse—what works in one area may not be appropriate in another. Also, the cost and ease of implementation may vary widely among the various measures and should be a major factor in selecting a package of strategies for the region, a subregion, or local government.

Several measures also produce benefits that are not reflected in Table 12-10. Measure #13, Landscaping and Site Design, and Measure #14, Reduction of Water Consumption, both result in less water being used (see Table 12-11).

Table 12-11: Projected Reduction of Water Consumption (acre-feet)

	2000	2005	2010
Measure 13	52,348	97,815	145,451
Measure 14	713,003	769,399	826,828

Measure #15, Increased Composting, reduces the need for additional landfill. Measure #17, Variable Rates for Garbage Collection, may result in a reduction of packing and other materials over the long term. Measures #15, #16, and #17 together are assumed to divert significant amounts of solid waste as part of the AB 939 implementation (see Table 12-12).

Table 12-12: Projected Diversion of Solid Waste (tons)

	2000	2005	2010
Measure 15	2,793,054	6,982,634	1,396,527
Measure 16	3,013,975	7,534,938	1,506,988
Measure 17	3,238,942	8,097,355	1,619,471

The purpose of this chapter is not to advocate one measure over another. All 17 measures are worthy of at least an initial look to see if they are appropriate in a given circumstance.

The results provided in Table 12-10 illustrate the impacts of each measure, should it be fully implemented as described throughout the SCAG region. These impacts cannot be fully achieved since the interactions among measures have not been eliminated. Of course, the total impacts of all these illustrative measures could only be accomplished through concerted efforts by many jurisdictions—local, regional, state, and federal—working toward a common end.

A combined energy and air emissions analysis reveals that several transportation measures achieve the largest air quality benefits. Higher fuel economy or shifts toward alternate fuels do not, however, contribute to the reduction or even mitigation of transportation congestion. Unfortunately, this suggests that the most effective air quality measures may be low on the scale of mobility planning. Major shifts toward alternate energy forms for transportation also raise a series of fuel supply and distribution issues that require additional examination. Close coordination between these perspectives is needed to achieve a balanced solution to the region's problems.

What is most revealing are the powerful impacts of appealing successfully to energy consumers through public awareness campaigns. How to accomplish this is unclear, but the large benefits of doing so, and the low costs of the effort, make this measure one that should be explored by every jurisdiction.

The RCP process illustrates how difficult it is to analytically assess measures cutting across many jurisdictions, let alone achieve the impacts required through collective action. While many jurisdictions cannot individually pursue some of these measures, the presumption of regional implementation used for analytical purposes illustrates how important collective action can be compared to individual action. Greater benefits can frequently be achieved, and probably at lower costs, to a group of jurisdictions working together on a common measure rather than through individual actions. Individual jurisdictions, however, can implement some of these measures in the area of their responsibility and achieve some portion of these impacts should they desire to do so. Implementation of individual measures in the agenda is discussed in detail in the Background Document and summarized in Section G of this chapter.

G. EFFICIENCY OPPORTUNITY AGENDA: IMPLEMENTATION

The implementation strategies for the 17 measures vary considerably because the measures themselves are so diverse. Some depend upon changing public behavior, while others can be mandated by local governments. At a minimum, SCAG can play a major role in providing for an exchange of information among its members and developing joint programs with energy utilities, other public agencies, and private businesses.

1. INDIVIDUAL MEASURES

The following is a brief summary of implementation strategies:

- **Measure #1—Supplemental Building Standards.** This measure would be implemented by cities and counties through the adoption and enforcement of the supplemental standards in the form of a local ordinance. General plan policies supporting the supplemental standards would be useful to provide a policy backup to the ordinances. The preparation of the supplemental building standards would best be done at a regional scale to provide consistency among all local governments that desired to participate. The development process should

allow for extensive involvement of the building industry and local government officials so that the standards are both practical and useful. Other entities, such as SCAG and energy utilities, could provide major assistance by developing model codes. This measure could be accompanied by the following: a technical assistance program; energy and water use evaluation requirements for large-scale developments; incentives for extra-efficient projects; and a monitoring and evaluation element to track the effectiveness of the supplemental standards.

● **Measure #2—Public Awareness Campaigns.** As the Energy Commission's July 1993 *Energy Efficiency Report* makes clear, the single greatest impediment to a more energy-efficient, energy-reducing society from our high-rises to our highways, from our daily activities to our dreams for the future is the public reluctance to make energy-wise decisions. Carefully coordinated Public awareness campaigns could be implemented by energy utilities, local governments, regional agencies, and state agencies. Basic information is most efficiently developed at a state or regional level, with campaigns conducted at a more local level. Programs to educate and inform the public can be introduced and distributed through a number of channels, including schools, community centers and gathering places, cable television stations, newspapers, and direct mailings.

● **Measure #3—Home Energy Rating System.** The California Home Energy Efficiency Rating System (CHEERS), Inc. has been formed to promote the use of a uniform, statewide home energy rating system. CHEERS is a public-private partnership that includes lenders, real estate agents, HVAC and insulation contractors, utilities, public interest groups, and government. Energy utilities have been successful in implementing this type of program, and this approach could be continued. State and regional agencies, such as SCAG and the CEC, as well as local governments could assist energy utilities by providing opportunities to help make people aware of the program and its benefits.

● **Measure #4—Existing Building (Retrofit) Ordinance.** Implementation of existing building retrofit ordinances occurs primarily at the local level, and usually at the time a building is sold or leased. This measure would be implemented primarily by cities and counties with the adoption of an energy retrofit ordinance. Local control is important because a retrofit ordinance must reflect the fabric of a community and not lead to the destruction of historic and other significant buildings. Since retrofit ordinances would be adopted mostly by local governments, regional agencies could provide an important role as sources of information. Regional agencies could undertake a survey of local retrofit ordinances and could develop model ordinances for consideration by cities and counties. Supplementing such ordinances could be education and incentive programs; a mandatory audit ordinance; and special provisions for buildings in redevelopment areas.

● **Measure #5—Vehicle Efficiency Standards.** This measure is implemented at the federal and state level in accordance with legislative mandates from laws such as the federal Clean Air Act and the California Clean Air Act. No action need be taken by SCAG, other regional agencies, or local governments at this time.

● **Measure #6—Fuel Quality.** Implementing the development of alternative fuels; including electric, natural gas, and others; to reduce reliance on imported gasoline will be undertaken primarily at state and federal levels, in coordination with the oil and gas industries. Low-emission vehicle standards have already been adopted by the state. Local governments can assist primarily by purchasing these vehicles as an example to their residents, as well as through hosting demonstrations and test-rides of these vehicles. Regional agencies and energy utilities can do the same, plus undertake public awareness campaigns to encourage use of low emission-vehicles.

● **Measure #7—Increased Vehicle Occupancy.** All levels of government can contribute to the implementation of this measure. Local governments can require or encourage carpool and vanpool programs; trip reduction ordinances, which must be adopted by local governments, identify programs to encourage ridesharing in carpools and vanpools. While many of the needed programs are in place, a local jurisdiction can enhance effectiveness by helping fund information and promotion campaigns, and construct preferential parking, among other items. Regional and state transportation agencies can provide for HOV lanes between communities. All levels of government can conduct public awareness campaigns to encourage increased vehicle occupancy.

● **Measure #8—Telecommuting.** Local governments can encourage telecommuting by adopting such programs for their employees, allowing or encouraging local telecommuting centers through their general plan and land-use regulations, and allowing or encouraging people to work at home through their home occupations ordinances. The viability of telecommuting, however, is largely beyond the control of local jurisdictions; although telecommuting centers can be programmed into future developments or retro-fitted into existing areas through zoning requirements, but may be difficult to monitor over time. State and regional agencies can help implement telecommuting through information campaigns and by providing opportunities for employees to telecommute themselves. More specific implementation ideas include the provision of credit to employers subject to a trip reduction ordinance for telecommuting employees and the organization of forums and workshops for local employers to explain the benefits of telecommuting.

● **Measure #9—Pedestrian and Bicycle Emphasis.** This would be implemented primarily by cities and counties through their general plans, specific plans, design guidelines, and land-use ordinances. The local governments could require an integrated system of pedestrian and bicycle paths, bike storage facilities, and shower facilities. More compact land use patterns, especially involving mixed uses, would also assist in this measure. Although local governments assume primary power to implement this measure, regional agencies, especially those responsible for transportation and air quality, could encourage local governments to adopt programs which support bicycle ridership and pedestrianism. Regional agencies also could coordinate the efforts of cities and counties to assure a regional system. To assist in the implementation of the measure, the following strategies could be considered: appointment of a bicycle/pedestrian coordinator or advocate; amendment of subdivision ordinances to require pathways and/or a system of paths; development and distribution of maps which clearly illustrate bicycle and pedestrian systems; and, establishment of education programs.

● **Measure #10—Transit and Land-Use Emphasis.** This measure deals with the potential for energy savings from increased transit facilities within a pattern of compact, mixed use, transit-oriented development. This measure should be implemented by a range of public agencies. The transit system must start with a regional framework of linkages between major communities, residential centers, and employment centers. To be most effective, this must be accompanied by local government programs that encourage growth around transit stops and stations, provide easy access to the stops and stations, provide for convenience services at transit stations, and provide for local feeder bus service. Related implementation strategies include: coordination with transit agencies to pursue joint development projects, including housing, adjacent to transit stations; provision of zoning incentives, including density bonuses; and adoption of specific plans around rail stations and transit centers.

● **Measure #11—Congestion Pricing.** This measure can best be implemented on a regional basis. Tolls will produce side effects that must be understood by SCAG and other regional agencies in advance of their imposition. The tolls can be imposed by the state or by operators of private road or bridges. Little

opportunity exists for direct implementation of congestion pricing by local governments. At most, local agencies can work with regional agencies to facilitate their efforts.

● **Measure #12—Parking Pricing.** This measure could be implemented on a regional or local level. The advantage of regional implementation is that the impacts upon business could be spread more evenly throughout the region. A local government could implement a parking pricing program to relieve congestion in certain areas or to encourage use of transit. The easiest method for local jurisdictions to implement parking pricing is to manipulate peak-hour rates at publicly-controlled parking facilities. Parking rates at private facilities are set based on competition: one indirect method of raising rates is to limit or otherwise control the number of private parking facilities in an employment area through zoning or design requirements. Finally, a city may choose to (a) lower parking requirements and set maximums for employers, allowing the value of the displaced parking to be used to subsidize transit, vanpools, or other modes, (b) seek a cooperative agreement with parking operators where rates are set artificially high and the excess profits used for transit, or (c) institute a tax on private parking facilities that can be used to subsidize alternative modes.

● **Measure #13—Energy-Efficient Landscaping and Site Design.** This measure would encourage water-conserving landscaping, site buildings to take advantage of prevailing winds, and use landscaping for shading. Homeowners planting a new yard, businesses creating facility amenities and cities with their street trees spend money on landscaping; the issue is to get them to use those funds to conserve energy. To that end, regional and local agencies and governments should develop guidelines or manuals for water- and energy-conserving landscaping in their communities. Additional implementation strategies related to this measure include: a strong enforcement system; installation of efficient landscapes at government facilities; community-based awards program for energy-efficient landscaping and site design; and, regular workshops and information sessions to educate the public about this measure.

● **Measure #14—Reduction of Water Consumption.** This measure aims at reducing water consumption to decrease the energy needed for water and waste-water pumping and treatment. It can be implemented by public awareness campaigns at all levels of government and by energy utilities. Basic information can be prepared at a state or regional level, energy utilities can disseminate information, and local governments can make information available. Local governments could work in collaboration with schools and other community-based centers to disseminate information as a way to implement this measure.

● **Measure #15—Increased Composting.** The basic structure to reduce solid waste is in place with the passage of AB 939. All levels of government can undertake public awareness campaigns on the ease and benefits of composting. As with other types of public awareness programs, the most efficient approach is to have material prepared at a state or regional level and then have local agencies customize it as necessary and disseminate it to local residents. Local agencies and governments can utilize a wide-range of channels to educate residents about composting. This outreach could include pamphlets, "How To" manuals, and live or televised demonstrations. Local entities can ensure that composting bins are available to local residents. Local governments should examine their general plan, zoning ordinance, and design guidelines to ensure that composting is not inadvertently discouraged.

● **Measure #16—Improved Efficiency of Recycling Process.** This measure would be directly implemented by those entities, public or private, responsible for the collection of recycled materials. Regional agencies, such as SCAG, could assist in determining appropriate regional-level sites for collection and distribution centers, and processing facilities. Additionally, regional agencies could disseminate information to the public

about recycling and ways to participate in the recycling process. Local governments would, at a minimum, need to be active partners in encouraging transfer stations and educating their residents about the program benefits.

● **Measure #17—Variable Rates for Garbage Collection.** This measure would be implemented by those entities that are responsible for setting garbage collection rates. Other entities could add support through providing information illustrating the benefits of variable rates. Most, if not all, local governments have control over garbage rates; therefore, they have the ability to adopt variable rates for their jurisdictions. Cities and counties should have policies in their general plans that call for variable rates in order to achieve land use and environmental goals. The variable rates would be adopted through whatever process is currently used to set rates.

2. FINANCING

Implementing energy projects is a challenge because they often require capital investments in order to realize energy and cost savings. Projects may be cost-effective, but unless a funding mechanism is available, they may not be implemented. In many cases, the financial resources and implementation strategies exist to improve energy efficiency and conservation in southern California. Since most of the 17 measures described will be effective only with public and business cooperation, and in many cases require little financial outlay by local governments, the guiding watchwords for the most productive funding options are "Education," "Partnership," and "Community Initiative."

A number of funding mechanisms for these 17 energy measures are available through federal, state, and local sources. These different financing options have been summarized in "Energy Improvements Financing Alternatives Study" (KPMG Peat Marwick, December 1992), "San Diego Regional Energy Plan Financing Options" (Scripps Consulting Group, May 1993), and "Financing Strategies for Integrated Waste Management Programs" (Local Government Commission/League of California Cities/California State Association of Counties, May 1992). For the purposes of this discussion, these various options can be grouped into seven general categories:

- Internal financing, directly from the local government's General Fund or special fund for capital projects
- General obligation and special revenue bonds
- Municipal lease-purchase programs, including:

- Single-issue, private-placement lease-purchase agreements,
- Certificates of Participation,
- Master leases designed to finance multiple projects, and
- Line-of-credit leases aimed at financing separate phases of projects;

- Pooled financing and utility partnerships, in which a number of entities are combined under one joint financial authority for economies of scale;
- Energy service companies;
- California Energy Commission loan and technical assistance programs; and
- Federal loans and grants.

Some of the funding options for energy measures are direct and obvious: loans, rebates, and technical assistance from organizations in the energy business — whether from the federal EPA and the state's Energy Commission or the local utility company and appliance manufacturers.

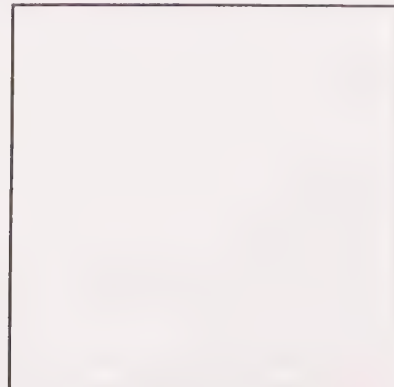
Other resources for local projects might come from funding for economic development and training-employment programs or from large partnerships between government, businesses, and community groups. Partnerships can also be formed that address separate but interconnected social issues that might be addressed simultaneously with the goal of saving energy. Local programs can be created and funded which blend resources from other "non-energy" avenues, such as economic development funds, business support, employment and educational grants, and community support. Sources of funding and illustrations of program partnerships are included in the analysis of funding for specific measures.

3. CONCLUDING OBSERVATIONS

Energy efficiencies can best be achieved when viewed in conjunction with other public policies. Implementation of energy measures should be integrated with implementation programs for transportation, air quality, land use, and other subject areas that are designed to make communities healthier and more pleasant places to live.

The traditional planning practices within the energy, air quality, transportation, and land-use communities have been, and continue to be, very different. For example, the energy planning community uses a planning paradigm that requires consumer demand for energy be satisfied. The energy planning process is designed to identify consumer demand and determine the least cost pattern of resource additions to match this demand. Energy planners use Demand-Side Management (DSM) programs to modify consumer demand for energy while meeting energy service requirements.

The air quality planning process is driven by the need to identify feasible control measures to demonstrate attainment of mandated ambient standards without being constrained by quantification of costs and benefits. Transportation has traditionally been facility-oriented, using demand models to determine where congestion could best be minimized through infrastructure additions. Land-use planners attempt to reconcile many economic, social, and environmental objectives; they believe that transportation and land-use planning should be examined simultaneously to produce an integrated approach to urban form, land uses, densities, and facilities. These different planning paradigms, and emerging changes mandated in law, need to be better reconciled in the future to allow effective evaluation of all efficiency options.



HAZARDOUS WASTE MANAGEMENT

- Introduction
- Purpose
- Goals
- Major Findings
- Background on the Tanner Planning Process
- Hazardous Waste Generation in Southern California—1990
- Hazardous Waste Management in Southern California—1990
- Projection of Future Hazardous Waste Generation in Southern California
- Future Hazardous Waste Management Capacity
- Regional Hazardous Waste Policies
- Integration of Hazardous Waste Management with Other Regional Issues

A. INTRODUCTION

Hazardous wastes are generated by a wide range of businesses in Southern California, from printers and auto shops to large oil refineries and electronics manufacturers. Historically, many of these wastes were disposed along with ordinary garbage, and sent either to municipal landfills or into the sewer and through the local wastewater treatment plant. In the 1970s, the dangers of these practices became quite evident. Contamination of the water supply attributed to hazardous waste disposal around Love Canal, New York grabbed significant media attention and prompted both public concern and legislative action.

The detrimental effects of improper hazardous waste management has become painfully well-known in Southern California. Major groundwater aquifers, relied upon by thousands of residents for drinking water, are now threatened with contamination from "volatile organic chemicals," which resulted from past waste management practices. PCBs and heavy metals disposed of through the publicly owned sewer system have resulted in contaminated fish and habitat in the region's oceans. In addition, local businesses and governments have expended considerable resources in attempting to remediate these problems.

Significant efforts have been initiated in the past 20 years at the federal, state, regional, and local level to ensure that such mismanagement does not occur in the future. The major thrust of this effort, in addition to cleaning up contamination from past practices, was to create a stringent regulatory system that would govern how hazardous wastes are to be managed and, most importantly, disposed of. This system of federal, state, and local laws requires generators of hazardous waste to keep careful track of the waste they generate and to send their wastes to specified types of waste management facilities where the wastes can be either recycled, treated (to reduce its hazardous characteristics) or disposed of in an environmentally safe manner. The type of recycling, treatment, or disposal required by law varies according to the type of waste.

One of the most critical factors in making this management system effective is to ensure enough capacity exists among the regional waste management facilities to provide the appropriate recycling, treatment, or disposal of the region's wastes. Without this capacity, hazardous wastes will be disposed of improperly, or will have to be transported long distances to receive proper treatment or disposal. The transportation of hazardous wastes long distances poses significant health and safety risks.

This chapter assesses the amount of current and future hazardous waste capacity in the region and is intended to help local governments plan for the development of new capacity, if needed. In addition, this chapter also assesses whether an equitable distribution of waste management facilities exists among Southern California counties and, if not, how such a distribution can occur.

The region's Hazardous Waste Plan, of which this chapter is a summary, was prepared under the direction of the Southern California Hazardous Waste Management Authority (SCHWMA). SCHWMA is a joint powers authority whose board comprised elected officials from the six county SCAG region as well as Santa Barbara and San Diego counties. Thus, this plan covers Santa Barbara and San Diego counties in addition to the SCAG region. SCHWMA completed its final Regional Hazardous Waste Management Plan (the "1989 Plan") in July 1989. This chapter and accompanying documentation constitutes an update to the 1989 Plan. It uses data on 1990 patterns of waste generation and management in the region and projects waste generation and management capacity requirements to 2010.

B. PURPOSE

This chapter is designed to assist the region's counties and cities, the regional councils of government, and the state, in their individual efforts to plan for current and future hazardous waste management requirements. It is also intended to provide the informational basis for further cooperation and dialogue among the citizens, businesses, and governments of the region and state in addressing what are collective concerns and needs for ensuring both economic viability, and safe hazardous waste management in Southern California.

C. GOALS

The hazardous waste chapter has two primary goals. They are the following:

- To promote the following waste management hierarchy for hazardous wastes:
 1. Waste Reduction.
 2. Recycling and Reuse.
 3. Safe Disposal.
- To ensure adequate, appropriate, and environmentally safe waste management capacity in the region.

While the first goal, encouraging waste reduction, is perhaps the most important hazardous waste management priority in the region, the analysis and policies in this chapter focus primarily on the second goal, ensuring adequate, appropriate, and environmentally safe waste management capacity in the region. This is because regional cooperation and decision-making are most critical in the area of facility siting and it is where regional planning is most important. Thus, while SCAG and SCHWMA recognize the importance of hazardous waste minimization, and such policies are included in the regional hazardous waste plan, it is the capacity issue that is at the center of this chapter.

These goals are closely linked to the overall goals of the RCP. Waste reduction, recycling, and safe disposal are consistent with the regional goal of providing a healthy and environmentally sound quality of life. In addition, adequate waste management capacity in the region ensures that businesses that produce hazardous wastes have access to available waste management facilities, and is thus integral to economic growth in the region.

D. MAJOR FINDINGS

The analysis of current and future waste generation and waste management capacity in Southern California which serves as the basis for this plan resulted in several significant findings. These findings reveal a dynamic hazardous waste management system in the region with dramatic changes in certain types of waste generation and in the waste management industry. These findings can be summarized as follows:

- The amount of hazardous waste sent to be managed off-site increased by 20 percent between 1986 and 1990.
- Excluding contaminated soils (which increased significantly in 1990 due primarily to a single large oil spill), total waste generation increased by only 2 percent between 1986 and 1990.
- In addition to contaminated soils, the major waste category showing the largest increase was waste oil, which increased nearly 60 percent. This large increase is likely due to regulatory restrictions on waste oil and increasing public awareness of proper waste oil disposal methods, rather than to new, increased generation of waste oil.

- Some categories of wastes showed marked decreases during this period, including metal-containing liquids (69 percent decrease), non-metallic inorganic liquids (down 55 percent), dye and paint sludges and resins (down 54 percent), non-metallic inorganic sludges (down 38 percent), PCBs and dioxins (down 25 percent), and non-halogenated solvents (down 19 percent).
- Many waste management facilities in the region appear to be closing, due perhaps to increasing regulatory requirements, liability concerns, and the general economic downturn.
- The region continues to lack sufficient capacity to safely manage the total amount of waste generated and must rely on management facilities out of the region and out of the state.
- The region is projected to require a substantial number of new facilities for waste oil recovery. In addition, to manage the waste generated within the region, one large incinerator is needed. Finally, existing residual repository capacity will likely be exhausted by 2010 and, therefore, additional residual capacity is necessary.
- A number of new facilities (and expansions at existing facilities) are proposed for the region, which would significantly reduce the region's capacity shortfall, as well as, perhaps, the fair share obligation of individual counties. However, until such facilities are actually approved and operating, they cannot be relied upon for planning purposes.
- Several issues that are difficult to predict may affect the need to increase hazardous waste management capacity in the region. These include new restrictions on the land disposal of hazardous wastes, increased waste shipments from Mexico due to the North American Free Trade Agreement, and restrictions on the interstate transportation of hazardous waste.

These findings reveal a consolidation in the waste management industry as smaller waste management facilities leave the business and larger, regional facilities, provide the bulk of the waste management capacity. It also underscores the need for regional cooperation in fostering the development of needed facilities and providing for an equitable distribution of new facilities. These issues are addressed in the policies and action plan of the Regional Hazardous Waste Management Plan.

E. BACKGROUND ON THE TANNER PLANNING PROCESS

In 1986, California enacted legislation providing the opportunity for each county, as well as four regions within the state, to prepare a comprehensive analysis of its hazardous waste management issues, problems, and needs. Assembly Bill 2948 (Tanner), recognized the need to minimize uncertainty and fear about what to do with hazardous wastes produced as byproducts of the production of goods and services upon which the region's quality of life has come to depend. Safe management is critical to protect public health, the environment, and also future economic growth. This legislation built upon the efforts and experience in Southern California since the beginning of the 1980s to work cooperatively in addressing regional hazardous waste management siting concerns.

The need for the development of county and regional plans, to a large degree, was triggered by state and federal laws that mandated the phase-out of land disposal (i.e., disposal in landfills) of untreated hazardous

wastes by the 1990s. Therefore, to rationally direct the development of new hazardous waste transfer stations, recycling and treatment facilities, or residual repositories as they become necessary for the region's hazardous wastes, each plan provides comprehensive siting criteria for modern hazardous waste management facilities, as well as policies and objectives to direct further planning for future hazardous waste management needs.

F. HAZARDOUS WASTE GENERATION IN SOUTHERN CALIFORNIA—1990

More than 20,000 separate businesses shipped more than 1 million tons of hazardous waste to be managed off-site in 1990. These shipments went to one of 1,400 facilities in and outside of the region. These facilities include transfer stations, recyclers, treatment facilities, and disposal sites.

Waste oil was the single largest type of waste generated in the region, accounting for nearly 400,000 tons or about 44 percent of the total amount of waste generated (*see* Figure 13-1). Other "miscellaneous wastes" such as asbestos-containing wastes accounted for the second largest percentage (22 percent). Oily sludges and solvents were the next biggest categories (8 and 6 percent respectively).

The 1990 data suggest an overall 20 percent increase in waste generation from 1986. However, much of this increase is due to contaminated soils attributable primarily to a large oil spill. Excluding the oil spill, a non-recurring waste in that it is not the result of an on-going economic activity, the growth is minimal, about 2 percent. Thus, the expected recurring waste stream changed only slightly in total tons during the four years. However, this small change overall masks significant changes in individual wastes streams. Waste oil increased by almost 60 percent alone. So striking a change may in large measure reflect an increase in the use of manifests for waste oil management, instead of actual growth in waste oil generation. As smaller generators are brought into the regulatory system and made aware of requirements for recycling and proper tracking of this waste stream, such an increase would be expected. Thus, much of the growth between 1986 and 1990 may represent growth in the use of registered waste haulers and recycling facilities for this waste. Setting these two waste streams (contaminated soil and waste oil) aside, the data suggest a decline in generation of wastes shipped off-site by some 20 percent.

G. HAZARDOUS WASTE MANAGEMENT IN SOUTHERN CALIFORNIA—1990

The region's generators of hazardous waste shipped their wastes to more than 1,400 different waste management facilities in 1990. Some 138 of these facilities were located within the eight counties in Southern California, while the balance were located elsewhere in the state or in other states. Thirty-eight percent of waste generated in the region was managed in the region, 42 percent was managed in California but outside the region, and 38 percent was managed out of state (*see* Figure 13-2).

It is important to note that much of the hazardous wastes generated in the region are shipped directly from a generator to a management facility for final disposition. (Management facilities are commonly referred to as "treatment, storage, disposal and recycling facilities" or TSDRs). Many wastes are sent first to transfer stations. Other wastes are "created" by TSDRs because they collect wastes (primarily waste oils and solvents) from small generators in a "milk-run" and become the generator of record under the state manifest

Figure 13-1

Generation of Hazardous Waste in Southern California in 1990

(for recurring wastes sent offsite)

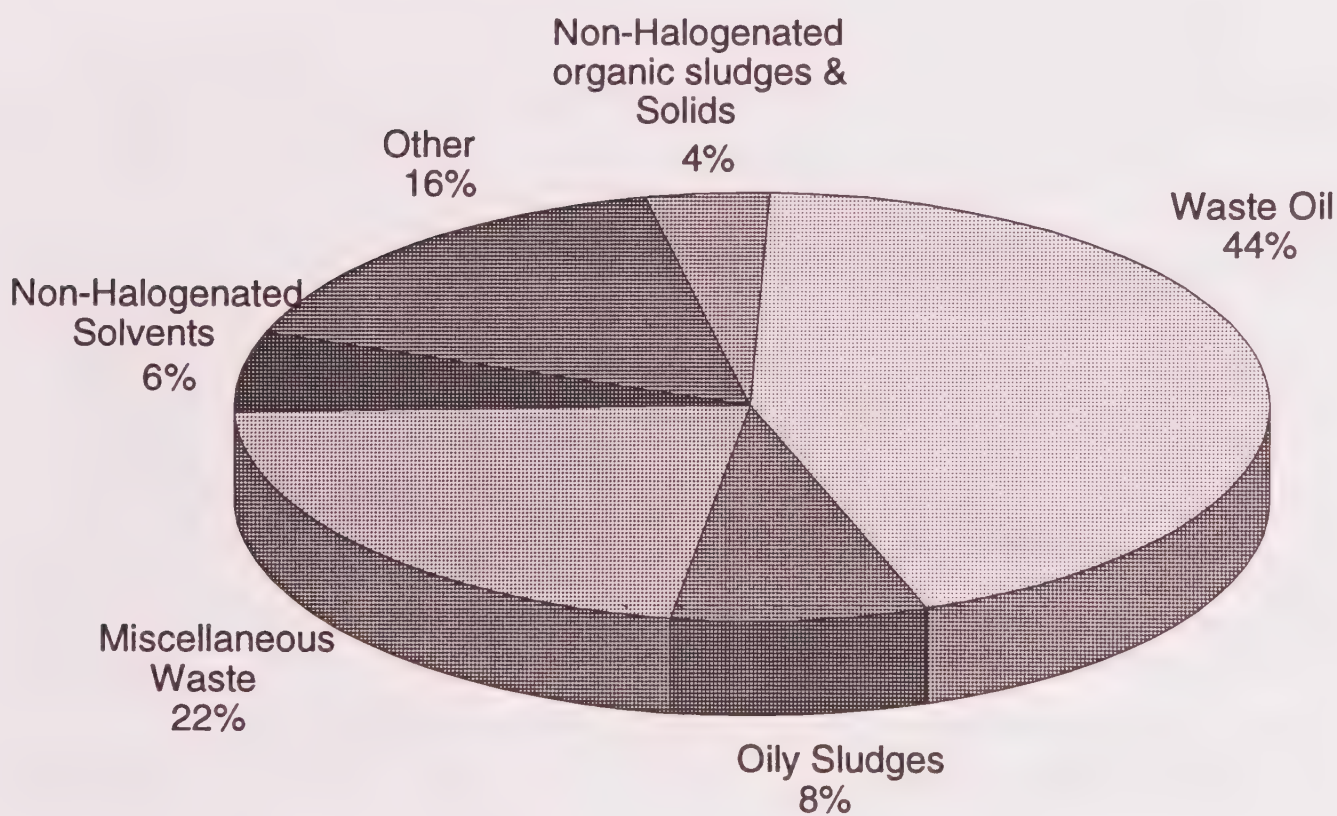
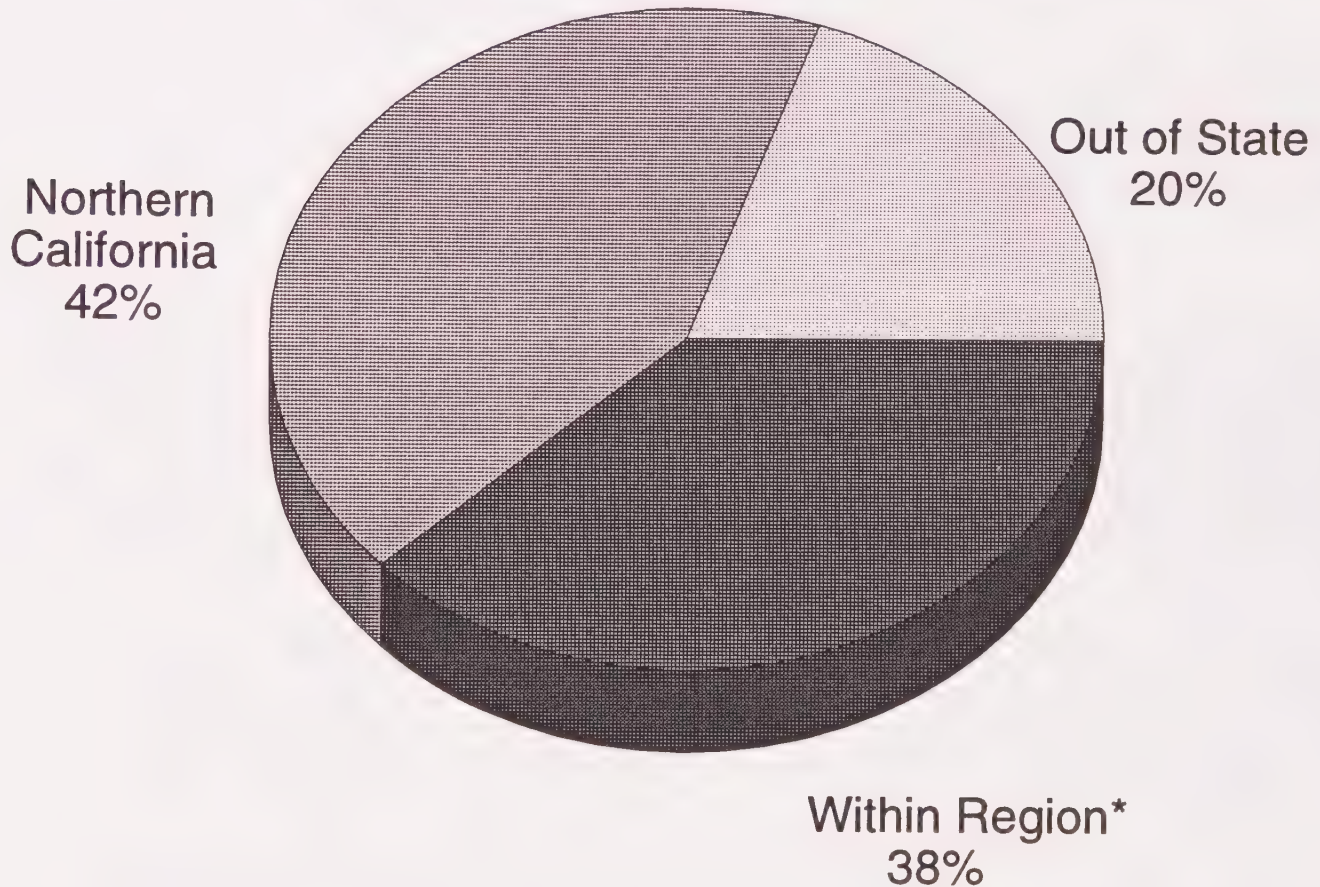


Figure 13-2

Location of Facilities Receiving Hazardous Waste from Region--1990



* Includes San Diego and Santa Barbara Counties in addition to the SCAG Region

system. The waste generated in the region was managed in a variety of ways. Forty percent of the waste was recycled, 40 percent was managed in a landfill, while 3 percent was sent to a surface impoundment and 3 percent was treated in tanks. Other treatment methods, including incineration, neutralization, and injection wells were also used, but less frequently.

H. PROJECTIONS OF FUTURE HAZARDOUS WASTE GENERATION IN SOUTHERN CALIFORNIA

The projections of future hazardous waste generation in this plan are based on employment projections as an indication of industrial activity and, hence, waste generation. Industry-specific projections, such as those based on individual Standard Industrial Codes, are not used because the information was not available on a sufficient proportion of the generators. Thus, for each county, the following formula is used to project hazardous waste generation in 2010.

$$\frac{1990 \text{ Generation}}{\text{Actual Employment in 1990}} \times \text{Projected Employment in 2010}$$

This projection provides the most conservative (i.e., "worst case") scenario in that it assumes that the many efforts industries are making to reduce their hazardous waste generation will be unsuccessful (i.e., it assumes that the rate of hazardous waste generation per unit of industrial or commercial activity remains constant during the 20-year period). Two additional estimates or scenarios of future waste generation were generated by factoring in the potential success of waste reduction efforts by industry. Thus, the analysis evaluated various alternative scenarios of the effectiveness of current efforts by industries to reduce their generation of hazardous wastes.

I. FUTURE HAZARDOUS WASTE MANAGEMENT CAPACITY

In comparing projected waste generation to current waste management capacity, the region appears to have adequate capacity for most types of recycling and treatment methods. However, shortfalls in capacity currently exist and will continue to exist in the area of oil recovery and incineration, regardless of whether businesses are able to reduce waste generation by 10 percent or 25 percent. For example, under the 10 percent waste reduction scenario, this analysis estimates that the region will have a capacity shortfall of 70,970 tons for wastes that are required by law to be incinerated. These wastes will have to be transported outside the region or outside the state for proper treatment. In addition, the region is projected to have a shortfall in residuals repository capacity by the year 2010, although the region's currently operating residual repository may expand capacity by then, and several current proposals exist for new residual repositories.

This analysis also shows the distribution of capacity among the counties in Southern California and the current disparity in disposal capacity that exists. In several important waste disposal areas, some counties are providing the bulk of the hazardous waste capacity for the region. For example, Imperial County supplies most of the capacity for waste stabilization in the region. These differences in waste capacity among counties may, in fact, make environmental and economic sense for the region. It represents an increase in large regional facilities, which reduces the total number of facilities needed in the region and limits the

environmental impacts of these facilities. However, such disparities raise questions regarding whether certain counties are providing their "fair share" of the region's waste management capacity.

Several hazardous waste management facilities have been proposed for development in Southern California. These facilities, if approved, would provide considerable additional capacity for the region, particularly in the area of residuals repositories. However, the facility siting process is a long and arduous one, with no guarantee of success. While the proposed facilities may assist the region in meeting its capacity needs, additional regional cooperation and attention toward siting environmentally safe facilities may be necessary.

J. REGIONAL HAZARDOUS WASTE POLICIES

Several important regional policies arise from an analysis of waste generation in the region. The most critical are regional policies in the areas of waste reduction, fair share, and siting new facilities.

1. FAIR SHARE

The idea of fair share has been central to regional hazardous waste management planning since the inception of the Southern California Hazardous Waste Management Authority. Essentially, the fair share concept asserts that every county in the region should accept responsibility for the management of hazardous wastes in the region in an amount proportional to the hazardous wastes generated within the city or county. The concept does not necessarily mean that each county must have facilities within its borders to manage all of the wastes it generates. The private market will likely direct facility development in certain areas. Furthermore, each jurisdiction may not generate enough of a specific type of waste to need an entire waste management facility for that waste. However, the fair share concept does require that counties that are "net exporters" of hazardous waste at least reach agreements with importing counties regarding intra-county waste disposal.

For each waste treatment category in which there exists a shortage of capacity in the region, this plan uses a formula to determine each county's "fair share" responsibility for providing this needed capacity. Thus, this plan includes fair share "allocations" in the area of oil recovery, incineration, and residuals repositories, the three treatment categories in which regional shortages are projected. These allocations are summarized in Table 13-1.

2. SITING NEW FACILITIES

Hazardous waste management, unlike municipal waste, is primarily a private-sector market. Waste produced by industry is collected, transported, stored, treated, and disposed of by private-sector entities. Thus, governmental action to promote or direct the siting of new facilities must recognize the market-driven nature of the hazardous waste management business.

Despite the private nature of the hazardous waste business, regional governmental cooperation in siting new facilities is important. Such cooperation can help ensure that facility siting decisions are made in the most equitable, environmental, and economically responsible manner.

Table 13-1

**COUNTY FAIR SHARE OBLIGATIONS TO MEET
2010 DEMAND FOR WASTE CAPACITY**

<u>Region</u> ³	<u>Fair Share Obligation¹ (Tons per Year)</u>	<u>Facility Implications²</u>
Oil Recovery	195,716	5.6
Incineration	63,873	1.0
Residual Repositories	389,229	1.0
<u>Imperial</u>		
Oil Recovery	1,957	0.1
Incineration	107	0.0
Residuals Repositories	750	0.0
<u>Los Angeles</u>		
Oil Recovery	0	0.0
Incineration	37,000	0.6
Residuals Repositories	222,362	1.5
<u>Orange</u>		
Oil Recovery	19,180	0.5
Incineration	6,242	0.1
Residuals Repositories	39,176	0.3
<u>Riverside</u>		
Oil Recovery	8,612	0.2
Incineration	5,869	0.1
Residuals Repositories	10,102	0.1

¹The fair share obligation is equal to the county's share of the total waste capacity shortfall for the region in each treatment category.

²Facility implications given for "large" facilities (oil recovery--35,000 tons annual capacity; incineration--65,000 tons annual capacity; residuals repositories--150,000 tons annual capacity).

³Includes San Diego and Santa Barbara Counties in addition to the SCAG region.

Table 13-1 (cont'd)

**COUNTY FAIR SHARE OBLIGATIONS TO MEET
2010 DEMAND FOR WASTE CAPACITY (CONT'D)**

	Fair Share Obligation <u>(Tons per Year)</u>	<u>Facility Implications</u>
<u>San Bernardino</u>		
Oil Recovery	84,158	2.4
Incineration	4,577	0.1
Residuals Repositories	61,065	0.4
<u>San Diego</u>		
Oil Recovery	72,415	2.1
Incineration	5,868	0.1
Residuals Repositories	45,541	0.3
<u>Santa Barbara</u>		
Oil Recovery	3,914	0.1
Incineration	2,152	0.0
Residuals Repositories	3,943	0.0
<u>Ventura</u>		
Oil Recovery	5,480	0.2
Incineration	2,152	0.0
Residuals Repositories	6,260	0.0

First, regional cooperation can help ensure that counties coordinate their approaches to siting criteria to avoid one county's policies from being significantly more restrictive than another county's policies, thereby leading to inequitable siting decisions. Second, through regional cooperation, general areas for facility development that meet regional needs can be identified.

3. WASTE REDUCTION

Waste reduction goals and programs are included in each of the county plans. SCHWMA, as a regional agency, can play a positive role in implementing these plans. Regional activities will include:

- Supporting strategies that give priority to waste reduction;
- Assisting in information sharing, intergovernmental coordination, and public advocacy;
- Developing a standard definition and reporting format for waste reduction in the region;
- Monitoring county waste reduction efforts; and
- Facilitating intergovernmental cooperation in waste reduction among local government, department of toxic substances control, special purpose agencies, and military institutions.

K. INTEGRATION OF HAZARDOUS WASTE MANAGEMENT WITH OTHER REGIONAL ISSUES

The safe management of hazardous wastes in the region is linked with several other issues covered in the RCP. These links include:

- Water Supply and Quality and Hazardous Waste Management. The most direct link between this chapter and other sections of the RCP is in the area of water resources and water quality. Providing a safe system of hazardous waste management in the region reduces the likelihood of future groundwater and surface contamination through improper and/or illegal disposal of hazardous wastes. Such protection is critical to ensuring adequate long-term supplies of water to the region as local groundwater and surface water is projected to provide a significant portion of the potable water from the region.
- Open Space and Hazardous Waste Management. The development of needed new facilities in the region will have implications for open space planning in the region. In particular, the siting of new regional hazardous waste management facilities in the desert portions of the region will affect plans for open space preservation in those areas.
- Economic Growth and Hazardous Waste Management. Providing adequate hazardous waste management facilities in the region can reduce waste management and waste transportation costs for area businesses, thereby reducing operating costs.
- Transportation and Hazardous Waste Management. Hazardous waste management is related to transportation in several ways. First, the lack of waste management capacity for some waste categories results in the transportation of hazardous wastes long distances, thereby increasing the risks

associated with such transportation as well as the potential liability of waste generators. The development of needed capacity as described in this chapter will reduce such transportation. Second, the transportation sector is itself a major generator of hazardous wastes. In particular, the generation of used oil, including used motor oils, is directly attributable to transportation. Increases in transportation in the region will increase the generation of used oils which already suffers from a lack of adequate recycling capacity.

- Air Quality and Hazardous Waste Management. There are air quality implications associated with many waste management technologies. In particular, the need for incineration capacity in the region raises air quality issues because of the emissions associated with this technology.



INTEGRATED SOLID WASTE MANAGEMENT

- Introduction
- Purpose of the Integrated Solid Waste Component
- Existing Goals and Objectives for Solid Waste Management Under State Law
- The AB 939 Planning Process
- Subregional Solid Waste Planning
- Waste Generation, Disposal, and Capacity in the SCAG Region
- Regional Solid Waste Issues
- Integration of Solid Waste With Other Regional Issues

A. INTRODUCTION

The average Southern Californian generates more than eight pounds of garbage each day.¹ This is equivalent to more than 22 million tons per year for the entire region. What to do with this enormous amount of waste—where to dispose of it and how to reduce the amount we produce—is an issue of great importance to Southern Californians and to local governments.

While some of the waste generated in the SCAG region is recycled or reused, most of it is sent to one of several landfills. The continuing reliance on landfills to dispose of the region's waste presents several problems. Many landfills in the region are running out of capacity while environmental concerns and

¹California Integrated Waste Management Board, CIWMB Interim Database Project based on 1990 data.

community opposition make building new landfills or expanding existing landfills increasingly difficult. The "Not-In-My-Backyard" (NIMBY) syndrome, so often referred to in the media, has effectively blocked or stalled the region's expansion of landfills. At the same time, dwindling landfill capacity has forced both the region and the state to make concerted efforts at reducing the amount of waste being produced while increasing the amount that is recycled or reused.

While the lack of landfills creates a short-term crisis and has sparked both media and political attention, the creation of new landfill or other disposal capacity will not necessarily reduce the need to reduce, reuse, and recycle the region's wastes. A growing awareness exists among environmental organizations and the public at-large that the region's history of using and disposing of its natural resources has other environmental implications. Waste sent to landfills represents raw materials that can no longer be used. Waste generated and not recycled or reused increases the region's continuing reliance on the use of virgin materials, such as timber and metals, and continues the environmental effects of producing or extracting these virgin materials.

In 1989, the California Legislature passed Assembly Bill 939, a far-reaching attempt to address the solid waste issue. AB 939 requires local governments to reduce the amount of solid waste generated in their jurisdictions and disposed of in a landfill or other means by 25 percent by 1995 and by 50 percent by the year 2000. Thus, the pressure is on local governments—which have historically had primary responsibility for waste collection and management—to swiftly implement effective programs and policies to divert waste away from landfills. At the same time, such programs can cost significant public resources and affect the region's competitive position. While much of this responsibility has been vested with local governments, it will require concerted effort among all levels of government and the private sector to meet these goals in an economically efficient fashion. This chapter addresses some of the issues associated with meeting these and other solid waste management goals in Southern California.

B. PURPOSE OF THE INTEGRATED SOLID WASTE COMPONENT

AB 939 requires local governments to prepare comprehensive integrated waste management plans that demonstrate how the 25 and 50 percent reductions will be met. There is no similar requirement to prepare regional plans and this chapter does not attempt to reconstruct the AB 939 plans on a regional level. Instead, this chapter has more modest goals intended to initiate a regional dialogue on solid waste issues. To that end, this chapter's purpose is to:

- Describe the integrated solid waste management planning process in Southern California.
- Describe issues associated with current and future waste generation and solid waste landfill capacity in the region.
- Identify potential regional strategies and actions for improving the region's solid waste management system.
- Integrate the issue of solid waste with other regional issues.

This chapter does not provide a comprehensive analysis or plan for managing the region's solid waste. Such an effort was beyond the scope and resources available. The chapter does, however, identify areas where

additional regional analysis and cooperation may be beneficial and provides a first step toward these efforts. Additionally, the recommendations in this chapter do not create new legal mandates for local governments or other regional governmental agencies.

C. EXISTING GOALS AND OBJECTIVES FOR SOLID WASTE MANAGEMENT UNDER EXISTING STATE LAW

The existing solid waste goals for the SCAG region are articulated in the state law (Cal. Pub. Res. Code, § 40000 et seq.) that governs solid waste management. These goals form the basis for solid waste planning at the city and county level and can be summarized as follows:

- Promote the following waste management practices in order of priority:
 1. Waste Prevention.
 2. Recycling and Composting.
 3. Safe Disposal or Transformation.²
- Minimize unnecessary duplication of effort in solid waste programs carried out by local governments.³

The regional objectives for solid waste are also identified in the state solid waste law and include the following:

- Divert at least 25 percent of all waste from landfills by the year 1995 and divert at least 50 percent by the year 2000.⁴
- Ensure that there is adequate, environmentally safe disposal capacity for the remaining wastes.

These goals and objectives provide the basis for developing policies and programs at the local level and for undertaking regional cooperative efforts to more efficiently and effectively reduce, recycle, and manage solid waste. It should be noted that some local jurisdictions, such as the City of Los Angeles, have adopted more ambitious goals for waste diversion than those articulated in the state law.

²Cal. Pub. Res. Code, §40051(a).

³Cal. Pub. Res. Code, §40001(b).

⁴Cal. Pub. Res. Code, §41780.

D. THE AB 939 PLANNING PROCESS

One of the fundamental objectives of SCAG's RCP is to describe in one document the various planning obligations imposed on local governments. In the area of solid waste, the planning requirements under AB 939 constitute a significant and comprehensive effort to plan for future solid waste needs. This section provides a brief overview of the AB 939 planning process.

AB 939 dramatically changed the approach to solid waste management in California, as well as the process for solid waste planning at the local level. It is this law, and subsequent amendments, that establishes the framework for solid waste planning and solid waste management in the State. Perhaps the most important aspect of AB 939 is a shift in state and local policy from solid waste disposal to "integrated waste management." The integrated waste management approach creates new priorities for addressing the waste issue and shifts the emphasis away from land disposal.

Thus, the law's intent is to create programs and policies at the local level that promote the reduction in waste generation first, the beneficial reuse of waste through recycling and composting second, and lastly the disposal of waste in either landfills or waste-to-energy facilities. To make these theoretical priorities a reality, the law sets ambitious legal goals for local governments to meet in reducing the amount of solid waste sent to disposal facilities (e.g., landfills, waste-to-energy facilities). By 1995, each city and every unincorporated county area must divert 25 percent of all solid waste away from disposal facilities. By the year 2000, 50 percent must be diverted.

AB 939 also established a significant solid waste planning process at the city and county level. To demonstrate how the diversion targets will be met, each county and city is required to develop detailed plans outlining the jurisdiction's current or planned policies and programs for promoting source reduction, recycling, composting and other activities and how these activities will result in 25 and 50 percent reductions in solid waste disposal.

1. PLANNING ELEMENTS UNDER AB 939

Prior to initiation of the planning process, each county must first form a Local Task Force (LTF). The composition of this task force is determined by the board of supervisors and a majority of the cities within the county and will usually contain members from the solid waste industry, environmental groups, the public, and government agencies. The purpose of the LTF is to identify countywide and regional concerns, determine the needs for new facilities, develop goals and policies, and provide for regional coordination. In addition the LTF has responsibility for reviewing the various plan elements developed by each of the cities in the county.

AB 939 requires cities and counties to prepare four major planning documents or elements.⁵ Eventually, all of the elements prepared by each of the cities within a county, and the elements prepared by the county, are combined into one document, referred to as a Countywide Integrated Waste Management Plan (see Figure 14-

⁵The procedures for preparing the various elements of an Integrated Waste Management Plan are included in Division 30, Part 2 of the California Public Resources Code and in Title 14, Chapter 9 of the California Code of Regulations.

1). These elements include the following:

- A Source Reduction and Recycling Element (SRRE), which is prepared by each city for its jurisdiction and by the county for unincorporated areas. The SRRE is essentially the jurisdiction's plan for meeting the diversion goals. Thus, the plan requires a detailed inventory of current waste generation and diversion and then an identification of the specific policies and procedures for increasing the current diversion rate to 25 percent by 1995 and by 50 percent by the year 2000. The city and county SRREs were to be prepared by July 1, 1992. Almost all of the jurisdictions in the SCAG region have prepared a draft SRRE. Each SRRE must include the following: a Waste Characterization Study; a Source Reduction Component; a Recycling Component; a Composting Component; a Special Waste Component; an Education and Public Information Component; a Funding Component; and a Facility Capacity Component.
- A Household Hazardous Waste Element (HHWE), which is prepared by each city for its jurisdiction and by the county for unincorporated areas. Counties and cities must also prepare a separate element addressing household hazardous waste. In the original AB 939 legislation, household hazardous waste was included as one component in the SRRE. Subsequent legislation required local governments to develop a separate element for household hazardous waste, although the law requires the element to be submitted at the same time as the SRRE.

Household hazardous wastes include a host of commonly used consumer products, including many paints, aerosols, home pesticides, batteries, and used motor oil. In the past, these products have been found to contribute significantly to the contamination of water and soils in and around landfills.

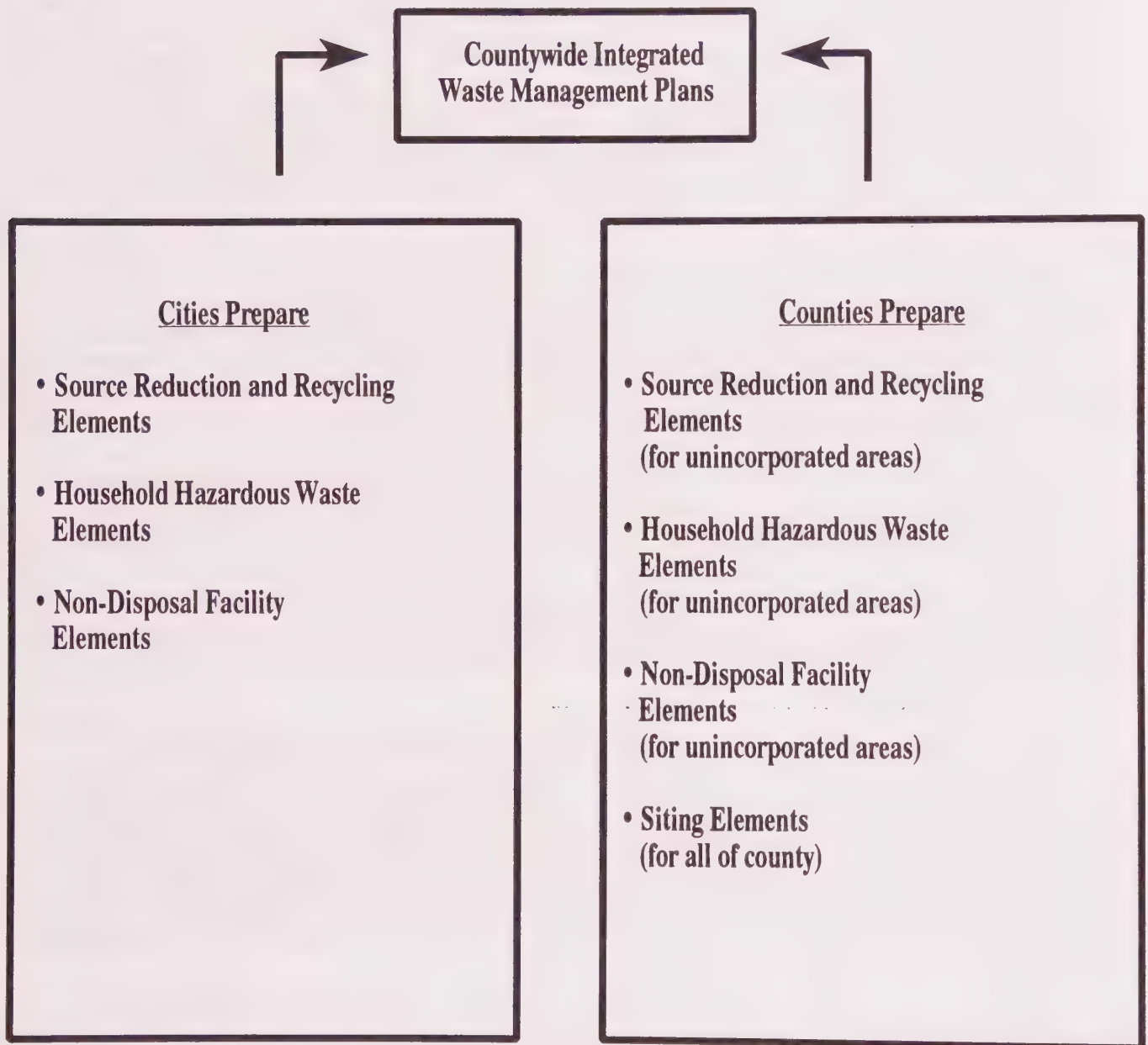
In the household hazardous waste element, each jurisdiction must identify the types and quantities of these wastes that are source reduced, collected, recycled, treated, and disposed of through existing programs. The state has established categories for household hazardous waste types that must be used in identifying these wastes.

Each jurisdiction must also identify various program alternatives for reducing the amount of household hazardous wastes being disposed of. The regulations require that local governments evaluate such options as providing collection services for household hazardous wastes, establishing monitoring programs at disposal sites to reduce the amount of household hazardous wastes being disposed, implementing recycling programs, and initiating public information campaigns. Each element must include an identification of the selected program alternatives for addressing household hazardous waste, as well as information on program implementation and program monitoring and evaluation.

- A Siting Element, which is prepared by the county. The siting element must provide a description of the areas in the County to be used for the development of adequate disposal or transformation capacity. The development of additional capacity must be shown to be consistent with the city source reduction and recycling elements within the county as well as the county source reduction and recycling element.

Figure 14-1

Elements of Countywide Integrated Waste Management Plans



The countywide siting element must contain estimates of total waste that will need to be disposed over a 15 year period as well as the remaining disposal capacity throughout the county. If these estimates reveal that current capacity will be exhausted within 15 years, the law requires cities and counties to identify areas for the location of new facilities or expansions of existing facilities. Any such areas identified must be consistent with applicable county or city general plans. If counties are unable to identify areas for new disposal capacity that are consistent with the general plan requirements of the cities and counties, then the siting element must contain a specific strategy for how excess capacity will be dealt with.

- A Non-disposal Facility Element, which is prepared by the city and the county. In 1992, the state legislature amended the solid waste laws and required local governments to develop an additional element called a "non-disposal facility" element. The intent of the non-disposal facility element is to provide a separate and distinct plan for the development of the various facilities necessary to meet the recycling goals specified in each jurisdiction's source reduction and recycling element. Thus, non-disposal facilities include material recovery facilities and other waste recycling and reuse facilities.

Each county is required to compile each of the elements developed by the county and the cities in the county into a Countywide Integrated Waste Management Plan (CIWMP). The CIWMP contains the following: all city source reduction and recycling elements; the county source reduction and recycling element; the city household hazardous waste elements; the county household hazardous waste element; the countywide siting element; the city non-disposal facility element; and the county non-disposal facility element. The CIWMP provides the comprehensive plan for each county to meet the goals under the state law.

E. SUBREGIONAL SOLID WASTE PLANNING

In addition to city and county solid waste planning required under AB 939, various subregions within the SCAG region have also developed solid waste plans. The Coachella Valley Association of Governments, for example, was the lead agency in preparing the AB 939 plans for its member agencies. By combining efforts, resources were conserved in the subregion and overlaps in policies and programs were reduced.

For the RCP, two subregions specifically addressed solid waste issues in their subregional plans. Many other subregions contributed comments on solid waste aspects in the RCP. The subregions addressing solid waste issues in their subregional plans include the Western Riverside Council of Governments and the San Gabriel Valley Association of Cities.⁶ These subregional plans are summarized below and are included in an appendix to the RCP.

Western Riverside Council of Governments. As part of its draft subregional plan, the Western Riverside Council of Governments (WRCOG) prepared a separate Solid Waste Subregional Element.⁷ This element establishes a Western Riverside County cooperative plan of action for integrated solid waste management. It is intended to provide information and alternatives to members of Western Riverside Council of Governments

⁶In addition, the South Bay Cities Association will include a section on integrated solid waste in its final input to the RCP.

⁷See Western Riverside Council of Governments, Western Riverside County Subregional Comprehensive Plan, Draft Discussion Document, September 10, 1993.

regarding a joint effort to implement state-mandated diversion goals. The overall goals of the element are to do the following:

- Provide for an integrated system that will meet the projected population growth needs for solid waste reduction, collection, recycling, processing, and disposal.

The element establishes 19 additional goals and objectives for meeting the overall goal and implementation actions for meeting these goals and objectives. These goals and objectives establish a comprehensive program for WRCOG to assist its member agencies in meeting their own solid waste program goals and objectives under AB 939.

San Gabriel Valley Association of Cities. As part of its subregional plan, the San Gabriel Valley Association of Cities prepared a Solid Waste Management Report.⁸ This report assesses the current status of waste diversion, waste capacity, and waste management costs in the San Gabriel Valley. The report also evaluates future waste diversion and capacity in the Valley. The potential for landfill expansion and waste-by-rail is evaluated in a series of potential "disposal capacity scenarios." These scenarios are based on different assumptions as to the future capacity of regional landfills. The report also evaluates future waste management costs in the subregion.

F. WASTE GENERATION, DISPOSAL, AND CAPACITY IN THE SCAG REGION

This section examines information on the amount of waste generated in the region, the amount recycled and reused, and the amount of waste disposed of in landfills. In addition, current information on the available capacity of landfills in the region is presented. Several sources of data exist on waste generation, diversion, and capacity. For the purposes of this chapter, information from the waste generation studies conducted by cities and counties for their Source Reduction and Recycling Element on 1990 waste generation was used. This information was submitted to the California Integrated Waste Management Board and included in a CIWMB Interim Database Project.

It should be recognized that changes may have occurred to these waste generation numbers since 1990. In particular, as jurisdictions have begun implementation of their SRREs, diversion rates can be expected to increase. Nonetheless these numbers are the best available, consistent regional information and provide a valuable assessment of the composition of the waste stream and the areas in which diversion appears to be working most effectively and where it is proving most difficult.

1. WASTE GENERATION IN THE SCAG REGION

A total of 22 million tons of solid waste was generated in the SCAG region in 1990. This is equivalent to over eight pounds of waste per day per Southern Californian. The SCAG region was responsible for approximately half of all the waste in California. Figure 14-2 shows the total amount of waste disposal in the

⁸Appendix A of the San Gabriel Valley Subregional Plan, prepared for the San Gabriel Valley Association of Cities by Earth Technology Corporation, August 25, 1993.

region broken down by each of the six counties. Los Angeles County accounted for more than half of all the waste generated in the region (12.4 million tons) followed by Orange County (4.4 million tons), Riverside County (2 million tons), San Bernardino County (1.6 million tons), Ventura County (1.1 million tons) and Imperial County (475,935 tons).

Figure 14-3 shows the types of waste generated in California. Paper-- including cardboard, mixed paper, newspaper, and other types--constitutes the largest portion of the waste stream (33 percent). Other types of organic wastes, including food wastes, tires, wood wastes, and crop residuals makes up 25 percent of the waste stream. Other major waste types include yard wastes (14 percent), plastics (6 percent), metals (5 percent), and glass (5 percent). An additional category, "other wastes" which includes among other items inert solids, constituted 12 percent. These percentages are roughly similar to the composition of the waste stream for the entire state.

2. WASTE DISPOSAL AND DIVERSION IN THE SCAG REGION

As reported in city and county SRREs, a total of 2,844,452 tons of waste was diverted away from landfills or other disposal facilities and recycled, composted, or reused in some other fashion in 1990. This is approximately 12 percent of the total waste generated. This figure does not include the diversion of certain waste types, including manure, crop residues, and white goods (e.g., air conditioners, refrigerators).

By far the largest percentage of the waste currently being diverted is paper (*see* Figures 14-4, 14-5, and 14-6). Sixty percent of the diverted waste is paper, followed by other organic wastes (18 percent), yard wastes (8.5 percent), and glass (7.5 percent). Other categories of waste each constitute less than five percent of the diverted waste. Again, it should be noted that as jurisdictions have begun to implement integrated waste management programs under state law, the amount of diversion in the region should be expected to increase. As it becomes available, more recent data on the region's progress in waste diversion, and the types of waste that are being diverted, will be collected and disseminated through the RCP process.

3. LANDFILL CAPACITY IN THE SCAG REGION

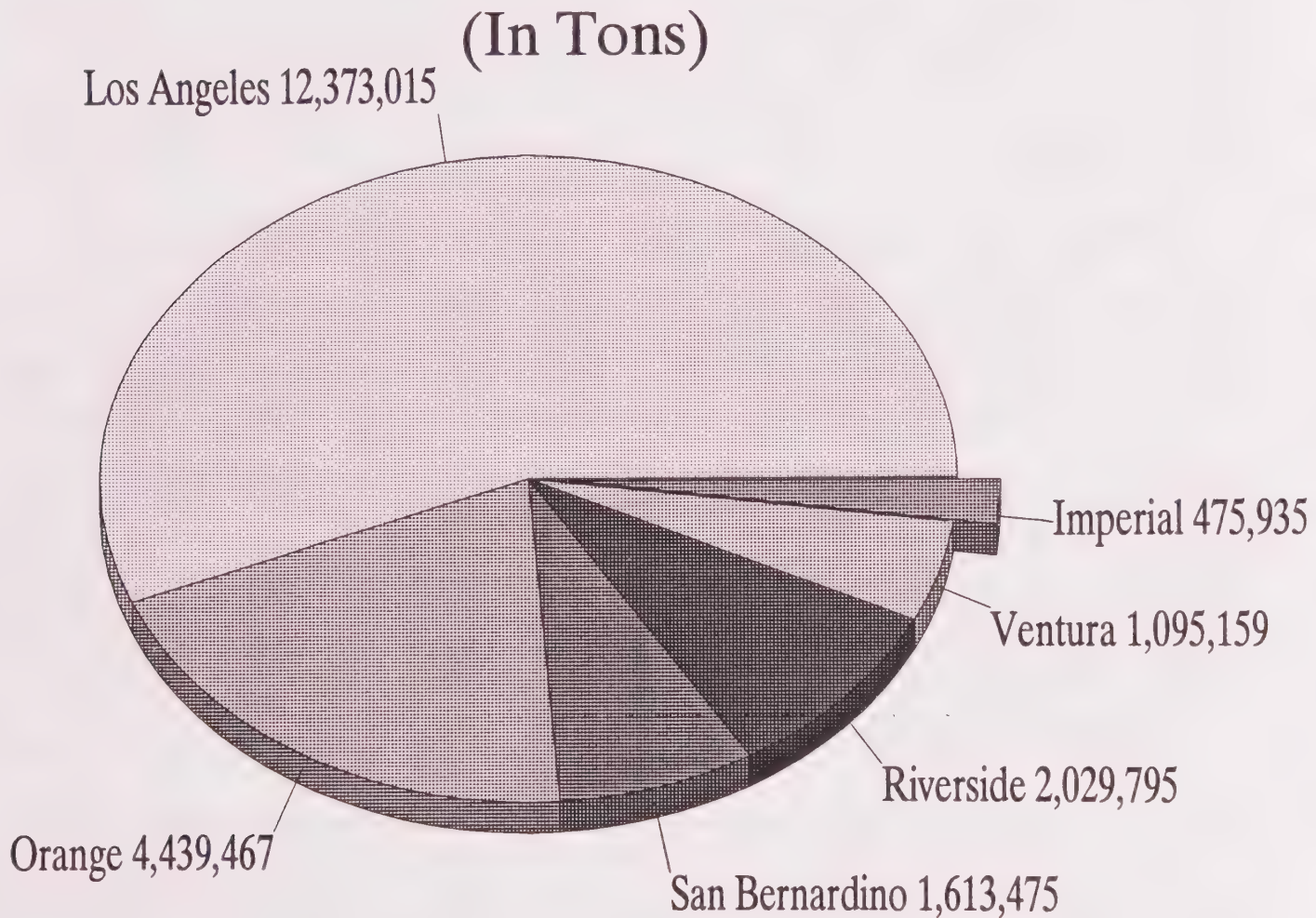
A crucial issue facing parts of the SCAG region is whether adequate capacity exists to manage the region's solid waste. It was the widespread perception that California was running out of landfill space that led to the passage of AB 939. In addition, many jurisdictions have been unable to site new landfills or expand existing ones due to fierce community opposition and protracted permitting processes. This diminishing capacity is exacerbated by a growing population that produces more waste than in the past.

Estimating the remaining capacity of landfills is very difficult due to several factors, including the following:

- Accurately assessing the import and export of wastes across county boundaries.
- Assessing changes in future waste generation and diversion.
- Potential expansions to existing landfill capacity.

Figure 14-2

Solid Waste Generated in SCAG Region By County-1990

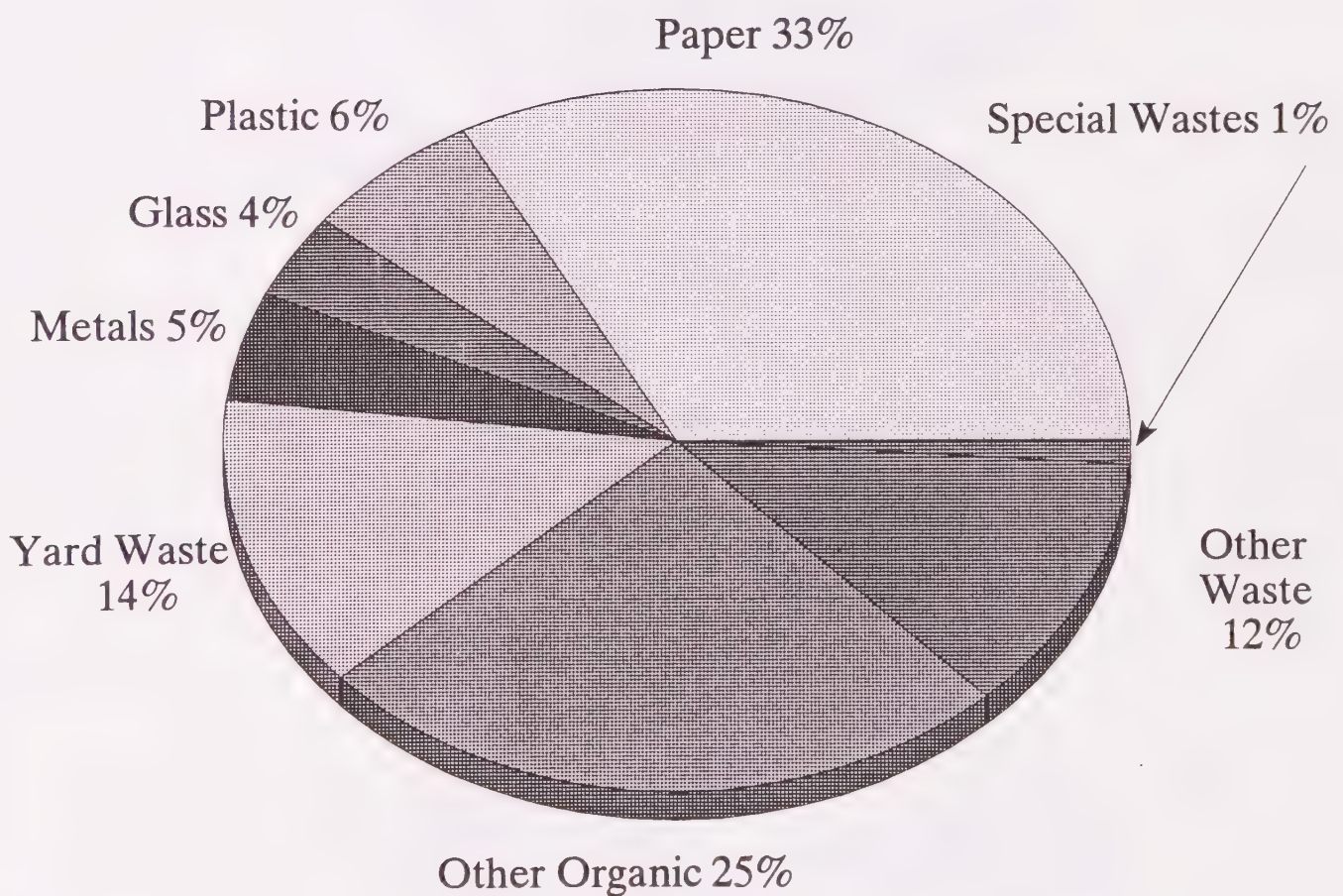


Total Generation = 22, 026,848

Source: California Integrated Waste Management Board

Figure 14-3

Solid Waste Generation in the SCAG Region-1990

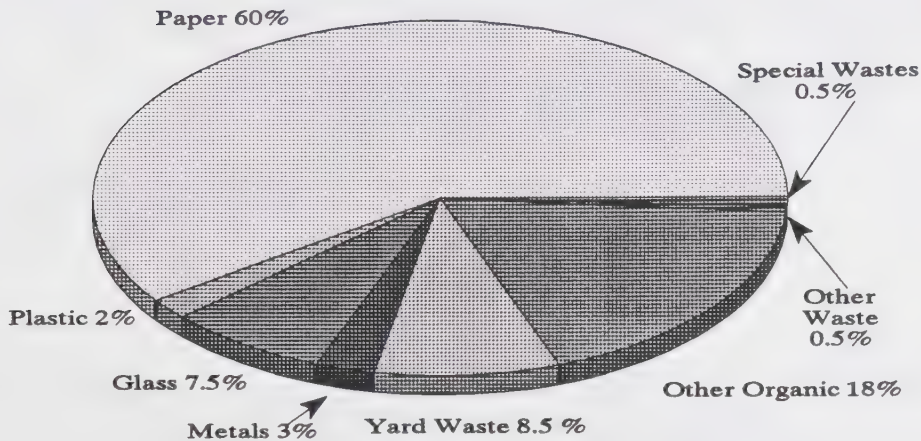


Total Generation - 22,026,848 Tons

Source: California Integrated Waste Management Board.

Figure 14-4

Solid Waste Diversion in the SCAG Region-1990



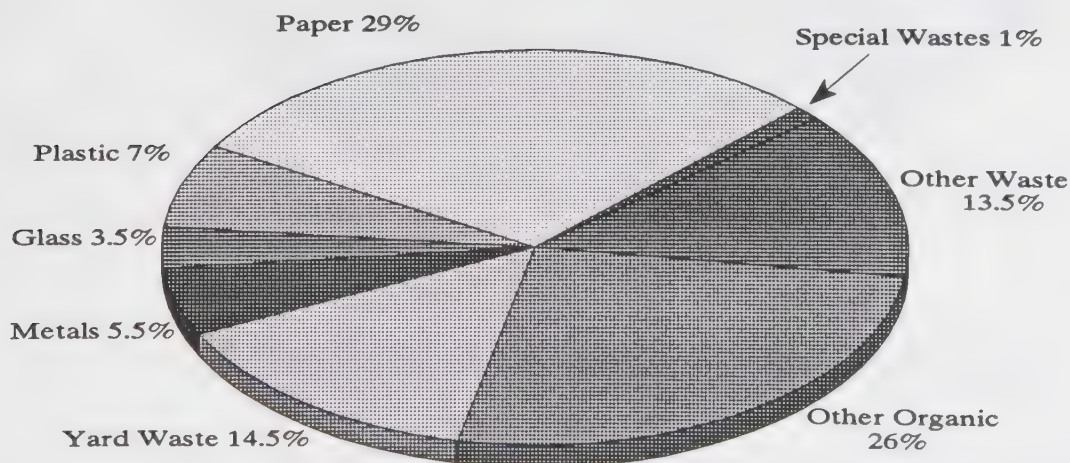
Total Diversion - 2,844,452 Tons

Note: These figures do not include the diversion of the following types of waste: Inert solids, scrap metal, agricultural wastes, white goods.

Source: California Integrated Waste Management Board.

Figure 14-5

Solid Waste Disposal in the SCAG Region-1990

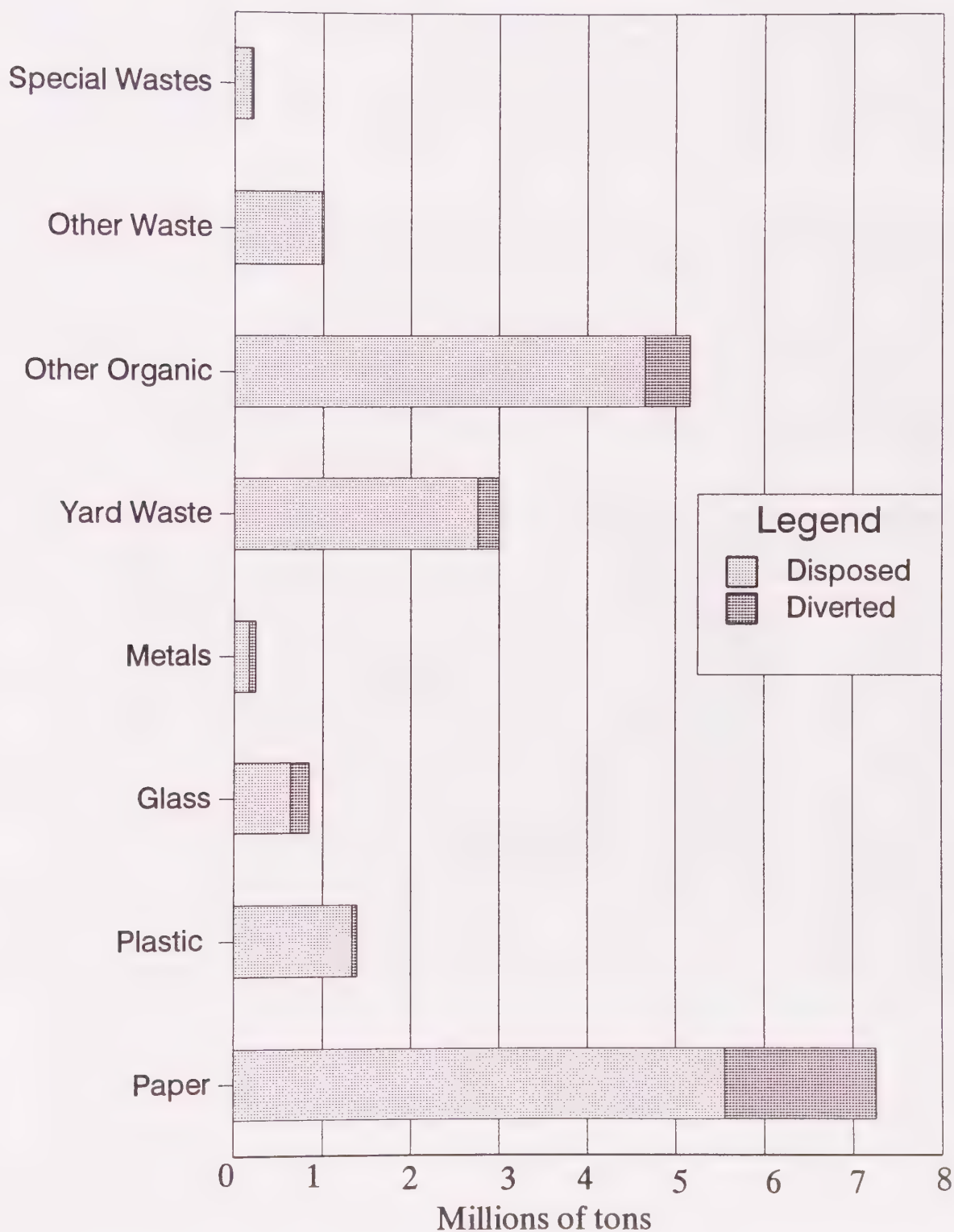


Total Disposal - 19,182,396 Tons

Source: California Integrated Waste Management Board.

Figure 14-6

Tons of Solid Waste Diverted and Disposed by Category in the SCAG Region-1990



- Locally imposed restrictions that may modify the actual capacity of a landfill.

This chapter does not include a new evaluation of landfill capacity in the region. Counties were required under Section 18777 of the California Code of Regulations, pursuant to AB 939, to submit data on landfill capacity to CIWMB. CIWMB summarized these data in an April 1992 report. Information on capacity presented here is taken from that report. The methodology used by each jurisdiction varied according to local conditions. As counties begin preparing siting elements, additional assessments of capacity, as well as county, subregional, and regional plans for ensuring adequate future capacity, will be prepared.

Landfill capacity can be described in one of two ways. It can be expressed in terms of the total amount of waste authorized to be disposed of in landfills as indicated by landfill permits. Or it can be expressed in terms of the number of years remaining before this available permitted capacity is used up.

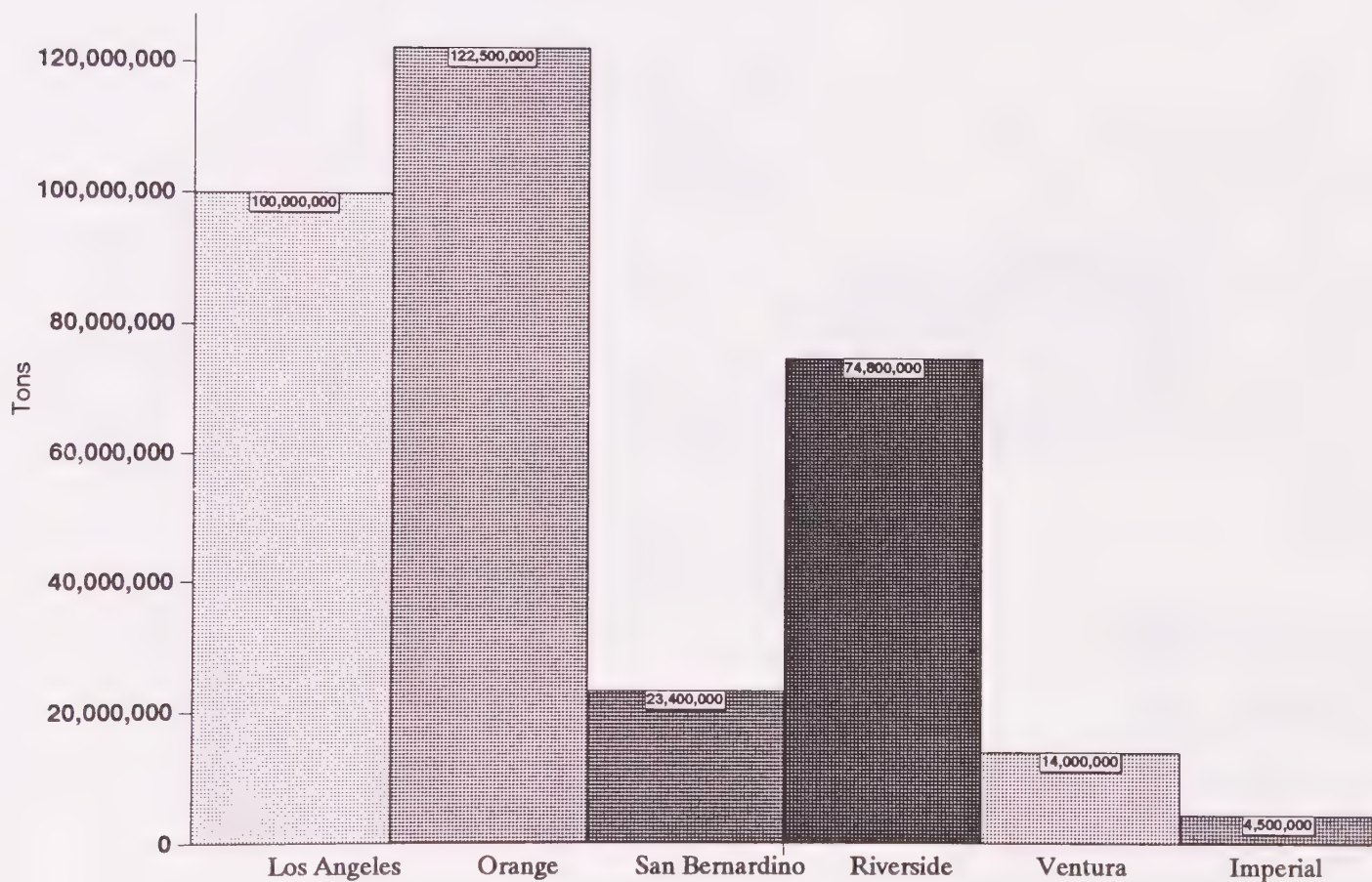
As reported by the county local task forces, the SCAG region had a total of 339.2 million tons or 579.9 million cubic yards of permitted landfill capacity in 1990. Figure 14-7 shows how this landfill capacity is allocated among the counties in the region. Orange County has the most available capacity (122.5 million tons), followed by Los Angeles County (100 million tons), Riverside County (74.8 million tons), San Bernardino County (23.4 million tons), Ventura County (14 million tons) and Imperial County (4.5 million tons).

The most straightforward approach to estimating the number of years of remaining landfill capacity is to divide the total available capacity in a region or county by the total amount of waste disposed of each year in the region or county. For several reasons, however, this approach may not accurately reflect actual remaining landfill capacity. Waste disposal can not be expected to remain constant over time due to growth or the initiation of new source reduction and recycling programs. Therefore, current waste disposal information can not always be used to project future waste disposal needs. In addition, a jurisdiction's permitted capacity may not be an entirely accurate reflection of the amount of landfill space that can be used in the future. For example, some jurisdiction's have locally imposed restrictions on landfills that do not allow a landfill to reach its permitted capacity. For the data presented here, each county's local task force used its own methodology to estimate the number of years of remaining capacity. Therefore, the estimates reflect the local conditions in each county.

Los Angeles County reports the most serious shortfall in landfill capacity. The County estimates that remaining capacity will be exhausted in five years or less (see Figure 14-8). San Bernardino and Ventura counties both estimate more than five but less than 15 years of remaining capacity. Orange County, Riverside County, and Imperial County all have more than 15 years capacity. Again, these estimates are essentially snapshots of 1990 capacity conducted individually by each county. Such capacity estimates are changing rapidly with closures and approved expansions of facilities and intercounty agreements to share landfill capacity.

Figure 14-7

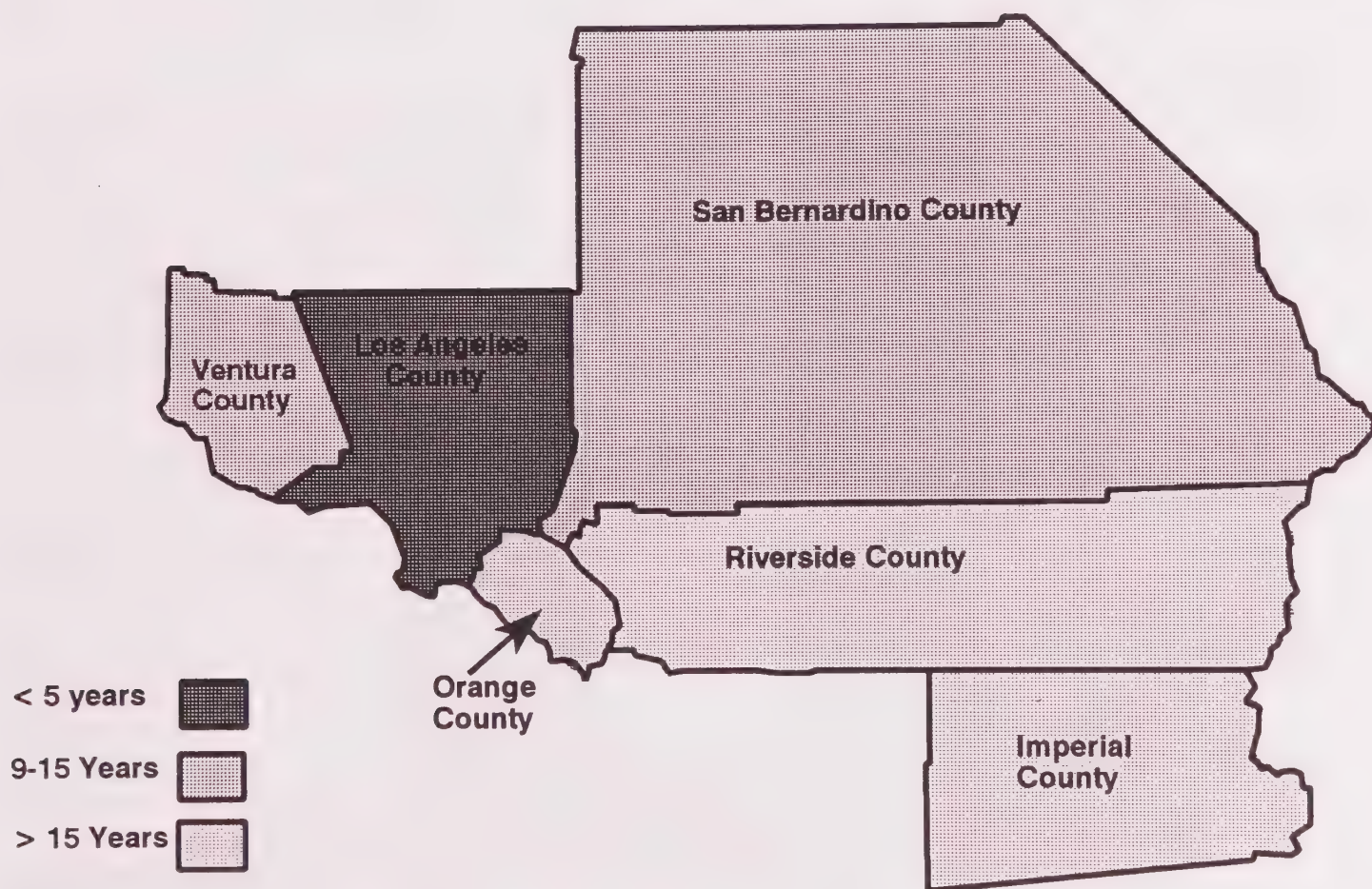
Permitted Waste Capacity in SCAG Region by County-1990 (In Tons)



Source: California Integrated Waste Management Board

Figure 14-8

Years of Remaining Permitted Landfill Capacity-By County 1990



Source: California Integrated Waste Management Board

4. PLANNED DEVELOPMENT OF NEW LANDFILL CAPACITY

In response to the potential shortfall in future landfill capacity in parts of the region, several proposals for new landfills or expanded landfills are being offered. The most regionally significant of the proposals are those that propose to site very large landfills in remote desert areas and use rail lines to transport waste from urban areas to the desert sites. The proposals, known as "waste-by-rail" facilities, were identified as a feasible waste disposal alternative in a 1988 report prepared by SCAG at the request of the San Gabriel Valley Association of Cities.⁹ Since then, several proposals have been offered to site and build landfills in various desert sites and to develop the necessary material recovery facilities, transfer stations, and rail lines to serve these landfills.

The proposed waste-by-rail initiatives currently include the Eagle Mountain project in Riverside County, the Rail-Cycle project in San Bernardino County, the InteRail and Chamber Development projects in Imperial County, the Campo project on the Campo Indian Reservation within San Diego County, and the East Carbon Project in East Carbon, Utah. Figure 14-9 shows the proposed location and rail right-of-way for each of these projects.

a. Eagle Mountain Project

The Eagle Mountain Project is being developed by the Mine Reclamation Corporation. The proposal calls for a Class III landfill to be developed in an unused iron ore open pit mine at Eagle Mountain in northeastern Riverside County. At peak operations, the landfill would receive up to 20,000 tons per day (tpd): 18,000 tpd by rail and 2,000 tpd by truck.

In October of 1992, the Riverside County Board of Supervisors approved the environmental documentation for the project and granted a conditional use permit. However, a coalition of environmental groups, local citizens and others filed suit over the adequacy of the Environmental Impact Report. In addition, state and federal approval will be required before actual construction can begin.

b. Rail Cycle Project

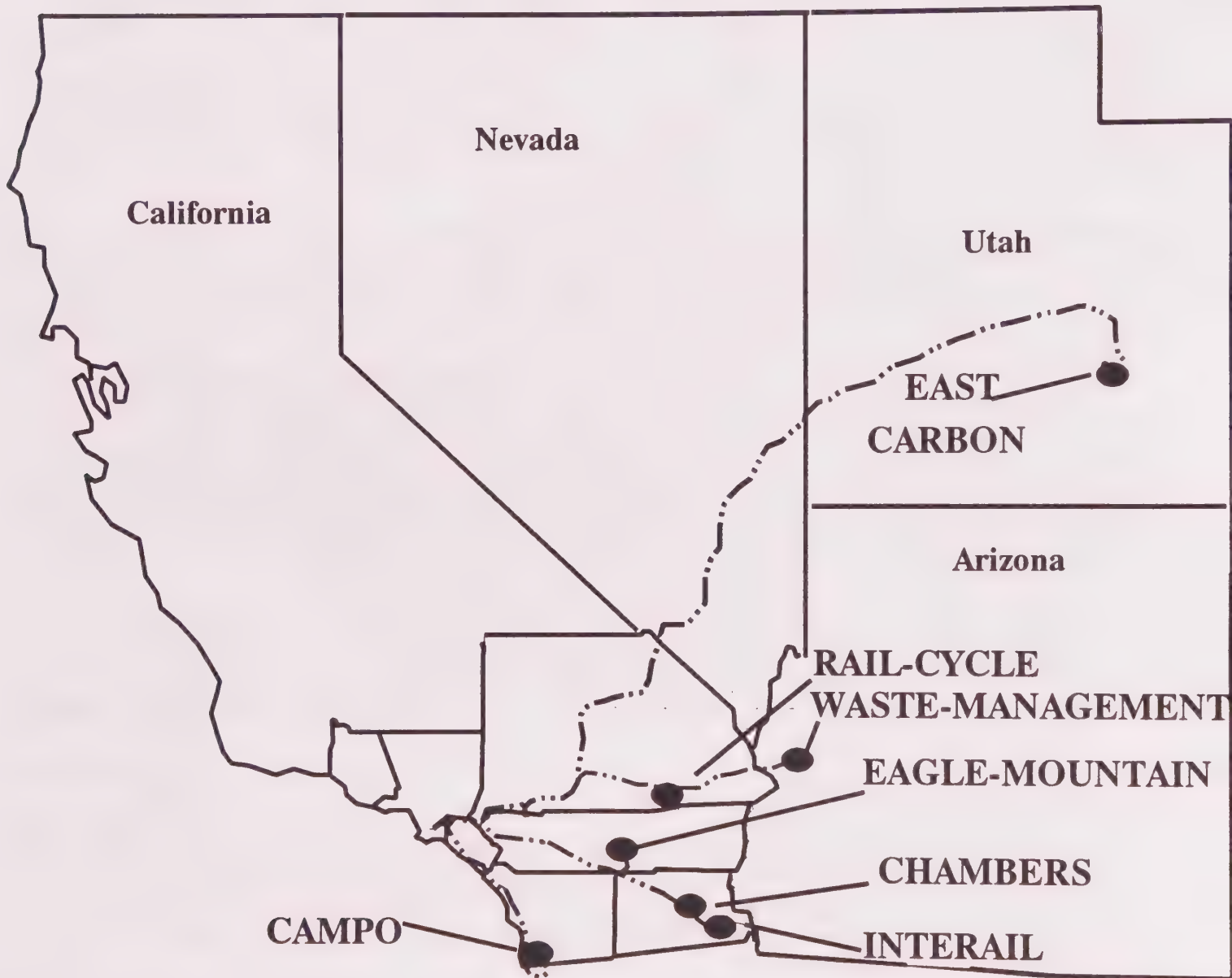
The Rail Cycle project is a joint venture between Waste Management, Inc., a large waste services firm, and the Atchison, Topeka and Santa Fe Railway Company. The proposal calls for a landfill with 200,000,000 ton capacity over 100 years to be built in Amboy, California in Eastern San Bernardino County. Material recovery facilities would be built in the cities of Commerce, El Segundo and in San Gabriel Valley.

A draft EIR was issued for the landfill project in November 1992. The City of Commerce has approved construction of a materials recovery and rail loading facility, however construction on the facility will not begin until the landfill is approved.

⁹Southern California Association of Governments. *The Feasibility of Hauling Solid Waste by Railroad from the San Gabriel Valley to Remote Disposal Sites*. April 1988.

Figure 14-9

Proposed Waste-By-Rail Projects in SCAG Region



c. California InterRail Project

The California InterRail Project is one of two proposed projects in Imperial County. The project calls for a regional landfill to be built in Glamis, near Brawley in Central Imperial County. The landfill, which would be located on existing mining lands, would have maximum capacity to handle 20,000 tons daily. The project, which is a joint venture involving the Gold Fields Mining Co., Western Waste Industries, and SP Environmental Systems, Inc., plans to utilize both new and existing material transfer and loading facilities.

d. Other Projects

Additional proposed waste-by-rail projects include the Chambers Development Project, which includes a regional landfill located near Niland in Imperial County, the Campo Solid Waste Management Project, which includes a proposal for a landfill on the Campo Indian Reservation located within San Diego County, and the East Carbon Project, a fully permitted landfill near the town of East Carbon in Utah. The East Carbon site, which is approximately 800 miles from Los Angeles, has already accepted a trial waste shipment from the Los Angeles County Sanitation District.

These proposed projects raise several important regional questions:

- How many waste-by-rail facilities can the region support?
- What will the impact of waste-by-rail be on local efforts at waste prevention and recycling?
- How will waste-by-rail affect waste management costs in the region?
- What will the impact be on the regional transportation system?
- What are the air quality implications of waste-by-rail?
- How will waste-by-rail facilities interact with emerging waste management technologies (e.g., gasification)?
- What are the implications of interstate restrictions on waste imports and exports?

One of the recommendations in this chapter is to begin the regional dialogue necessary to answer these and other questions.

G. REGIONAL SOLID WASTE ISSUES

For the SCAG region to meet the ambitious goals for solid waste diversion required under AB 939 and to provide safe, economical, and equitable disposal facilities, several policy issues may need to be addressed. This section raises several of the key issues in meeting the region's solid waste goals. From this section, it becomes clear that coordinated action among local, state, federal, and private sector participants will be necessary to meet the significant challenges posed by solid waste.

1. DEVELOPING RECYCLING INDUSTRIES AND SELF-SUSTAINING MARKETS FOR RECYCLED MATERIALS

Recycling is and will continue to be a key factor in diverting solid waste away from land disposal. The crucial issue the region must address before high rates of recycling can be achieved is whether it can foster viable, self-sustaining markets for a broad range of materials.

Creating recycling markets is a chicken and egg problem. A need exists to create an increased demand for products made from recycled materials to support the development of recycling industries. At the same time, fully capitalized recycling industries need to be developed to accept recycled materials as feedstocks and to produce recycled products. Both the supply and demand issues need to be addressed simultaneously. Governments at the local, state, and federal level can play a positive role in creating these markets. In fact, recycling-based manufacturing represents a new, environmentally responsible industry in which the Southern California region has the opportunity to be a nationwide leader.

A key element of any viable markets is, of course, having customers willing to purchase products or services at a price that will sustain the operation of a business. For recycled products, in many areas and for many types of materials, there is currently insufficient demand to sustain recycling businesses. This is changing, of course, as more consumers are actively seeking recycled products and are willing to pay slightly higher prices for such products, and as recycling technologies advance, thereby lowering the costs of production and product prices. Nonetheless, the lack of demand may threaten the creation of a robust recycling industry in Southern California.

Direct governmental action to create markets for specific products certainly is not without real problems. Governments are often not in the best positions to determine which products should be promoted or the most effective way of increasing consumer demand. Nonetheless, there are actions that can be undertaken by federal, state, regional, and local governments that will foster the markets necessary for the region to meet the diversion requirements under the law and can help promote industries that will provide for real economic development. Such actions include adopting procurement policies that favor recycled products and therefore increase demand; creating economic incentives for new recycling businesses; promoting the infrastructure necessary for a regional recycling industry.

Recommended Strategies

- Regional information on the location and capacity of recycling facilities and data on material diversion in various subregions should be collected and disseminated to foster market development.
- Federal, state, and local procurement policies that favor recycled products should be encouraged. Information on such programs should be collected and distributed to local governments in the region.

2. Encouraging a Reduction in Overlap in Waste Prevention Public Awareness Campaigns

Through concerted public and private outreach efforts, considerable progress has been made in educating households and businesses about recycling. However, while recycling has been incorporated in the daily

routine of many Southern Californians, waste prevention (often referred to as "source reduction") still lags behind. Thus, significant efforts will be necessary to educate the public about the necessity and the means of reducing the amount of waste they generate.

In many ways, waste prevention outreach, as opposed to recycling outreach, lends itself to broader—either state or regional—campaigns. To be most effective, recycling education must often be tied to the specific recycling programs in a local community. Waste prevention, on the other hand, embodies more universal concepts that are essentially the same from locality to locality.

The AB 939 planning process fosters the development of numerous waste prevention campaigns in each locality, both by placing waste prevention on the top of the waste management hierarchy and by requiring localities to develop specific public outreach components in their plans. While these local efforts are important, considerable public resources may be saved by supplementing local efforts with state or regionwide campaigns.

The state Legislature recognized the need for broader public outreach efforts in this area and in 1992 passed a law requiring the California Integrated Waste Management Board to develop a comprehensive outreach program.¹⁰ This public campaign and additional state and regional public information efforts will be critical in changing fundamental waste generation habits among Southern Californians. In addition, such campaigns will provide for the most effective use of public resources by reducing unnecessary duplication of efforts.

Recommended Strategies:

- Encourage the continued development of a statewide waste prevention public awareness campaign that reduces unnecessary overlap and expenditures at the local level.

3. ECONOMIC IMPACTS OF INCREASED WASTE MANAGEMENT COSTS

The decreasing amount of landfill capacity combined with additional waste recycling requirements is increasing, and will continue to increase, the solid waste disposal costs to businesses in Southern California. Increased operating costs, particularly if they differ from those costs in other regions in the United States or from other countries will give the region a competitive disadvantage in attracting and retaining businesses. Given the current state of the regional economy, any differential cost in doing business in the region should be examined closely.

The solid waste analysis prepared by the San Gabriel Valley Association of Cities as part of their subregional plan examined potential solid waste disposal cost increases in their subregion. Current Los Angeles County Sanitation District (LACSD) tipping fees (i.e., cost of disposal in a landfill) range from approximately \$16 to \$24 per ton. LACSD estimates that waste-by-rail tipping fees will likely range from \$50 to \$55 per ton.

¹⁰The law (AB 2494, amending Section 42600 of the Public Resources Code) requires the Board to establish a statewide public information and education program that, at a minimum: encourages business and industry to reduce excess packaging; encourages consumers to reduce waste generation and increase recycling; encourage local government procurement of recycled products; encourage business, industrial, and residential consumers to purchase recycled products; provide information to cities, counties, and regional agencies on these outreach efforts and develop cooperative strategies to reduce costs, and develop and disseminate model outreach materials to local governments.

Additionally, tipping fees at current landfills may rise approximately 25 percent in an effort to "levelize" tipping fees with the waste-by-rail alternative. Thus, the potential cost impacts on the San Gabriel Valley will vary depending on the use of waste-by-rail. For local businesses, this increase will be felt most significantly by businesses in which waste prevention and recycling is most difficult.

In addition to the costs of tipping fees, the additional costs (both public and private) of the full range of integrated waste management activities need to be evaluated in the region. This includes the costs of various types of recycling programs, transportation systems, transfer facility operations, and land disposal costs. Such an analysis would provide a more accurate reflection of the true costs of waste management in the region, now and in the future.

Recommended Strategies

- undertake regional study of current and potential future solid waste management costs in the region and options for reducing the impact of increased costs on area businesses.

4. PROMOTING NEW TECHNOLOGIES

The development of new waste technologies will be essential to the success of the region in meeting its waste management goals. Promoting these new technologies will offer dual benefits to the region. First, it will assist the region in meeting its goals for solid waste reduction and recycling. Second, these technologies may represent new industries, providing products and services that can be exported to other areas. Such technologies include new and more efficient product packaging, advanced materials recovery facilities and equipment, more efficient recycling technologies. In addition, new waste management technologies are developing that may offer environmentally safer disposal options. These include gasification technologies, regional composting facilities, and other techniques that can transform wastes into useful products, such as fuels or electricity, without the emission of significant air pollutants.

Recommended Strategies:

- A regional solid waste technology task force should be established to evaluate opportunities for the application of new waste management technologies in the region.
- Sponsor a regional conference to bring together representatives from the financial community, environmental technology businesses, and the public sector to facilitate the financing of new environmental technologies and the development of an environmental technology industry in the region.

5. FACILITATING REGIONAL DIALOGUE ON INTERCOUNTY WASTE DISPOSAL PROJECTS

The major intercounty waste disposal projects being considered in the SCAG region are designed to provide waste disposal capacity for several of the SCAG region counties. The inter-county disposal of waste on this scale will be new to the Southern California region. Traditionally, planning for waste disposal facility capacity has been conducted on a county level. The waste-by-rail proposals, however, raise several regional

questions. How many of the proposed facilities are needed to provide the region with adequate disposal capacity? What will be the impact of these facilities on the region's efforts to reduce and recycle wastes? What are the transportation and air quality implications of rail-haul?

Recommended Strategies

- Consistent planning information should be collected and disseminated on a regional scale on a regular basis to promote informed, regional decision-making during the consideration of regional landfills. Such information should include the following:
 - Information on regional landfill capacity and various factors that affect regional capacity, including Subtitle D landfill requirements, intercounty agreements, etc.
 - Information on the regional impact of rail-haul proposals on transportation systems and air quality.
 - Information on the relationship between regional landfill development and the development of recycling markets.

H. INTEGRATION OF SOLID WASTE WITH OTHER REGIONAL ISSUES

Because the generation of solid waste is tied to the full range of human activities (i.e., production, consumption, etc.) it intersects with several of the other issues facing this region and covered in SCAG's regional comprehensive plan. Briefly, these intersections include the following:

- Economic Development and Solid Waste. As discussed above, the potential closing of several landfills and the development of regional, waste-by-rail landfills could increase waste disposal costs, negatively impacting area businesses. A more thorough assessment of the current full cost of waste management systems in the region is needed before such a conclusion can be drawn. On the positive side, the diversion requirements under AB 939 offer the opportunity for California and the SCAG region to become leaders in the manufacture of recycled products. Currently, financing and other impediments limit the ability of recycling industries to develop to their full extent. The development of recycling-based industries as part of the broader effort to develop regional environmental businesses is encouraged through the economic chapter of this document.
- Air Quality, Transportation, and Solid Waste. Waste-by-rail and other changes in the disposal infrastructure of the SCAG region, will modify waste disposal transportation patterns as well as change the amount of emissions from these transportation sources. Current policies aimed at electrifying rail transportation will play a large role in determining the ultimate impact of these changes.
- Housing and Solid Waste. Housing patterns and development will have an impact of the amount and type of wastes produced in the region in the future and, thus, affect efforts at waste prevention. Per

capita waste generation is traditionally higher in single-family housing than multi-unit housing. In addition, a higher percentage of waste generation in single-family housing is yard wastes.

- Growth and Solid Waste. Growth has the most obvious impact on waste generation. As the region grows, waste generation can be expected to increase and increasing pressure will be put on existing landfill space.
- Energy and Solid Waste. Solid waste disposal systems and infrastructure rely on energy sources (electricity, natural gas, and petroleum) to function. The energy chapter of this document evaluates more fully the energy consumption from solid waste disposal and the impacts of such energy consumption.

Chapter 15



PLAN IMPLEMENTATION

- Introduction
- SCAG's Approach to Plan Implementation
- Impacts on Local Government Decisions
- Implementation Tools For Effectuating the RCP
- Streamlining Implementation Procedures Using Regional Goals and Policies
- RCP Updating Process
- Consistency Standards and Procedures for Project, Plan and Program Review
- Procedures for Expediting Review of Regionally Significant General Development Projects

A. INTRODUCTION

This chapter outlines the collaborative effort and actions needed to implement the Regional Comprehensive Plan (RCP). It is directed toward the achievement of the primary goals contained in the RCP for the region: (1) a rising standard of living, (2) a healthful and environmentally sound quality of life, and (3) equity. The overall plan implementation strategy invites the active participation of cities, counties, and subregional agencies, in addition to regional, state, and federal agencies as well as various private-sector interest groups. It is proposed that local governments be allowed the freedom to choose implementation measures that best suit local conditions from among an array of appropriate alternative proposals, whenever possible.

As an agency responsible for the coordination of regional decision-making and fostering better communication on regional issues, SCAG will work to promote the attainment of the regional goals and policies of the RCP to enhance the quality of life by encouraging the use of regional resources in ways that optimize the achievement of those goals and policies in the most cost-effective manner.

B. SCAG's APPROACH TO PLAN IMPLEMENTATION

SCAG will endeavor to exercise its existing authority in a manner that is sensitive to local needs and objectives, while also meeting state and federal requirements. No additional authority is being conferred upon SCAG to implement regional plans that did not exist prior to the formulation and adoption of this Plan. What has changed is that various regional plans prepared by SCAG and other agencies have been brought into a consolidated package for easier reference. For example, with or without a RCP, SCAG is required to analyze local projects of regional significance for consistency with all relevant, regional, or areawide plans regardless of which agencies prepared those plans.¹ The Regional Council will establish policy for how the implementation programs and procedures are administered.

In all aspects of plan implementation, SCAG will support local jurisdictions and other service providers in their efforts to provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, child care, social services, recreational facilities, law enforcement, and fire protection. Furthermore, SCAG will support efforts of local jurisdictions and community leaders to equitable represent minority groups among elected and appointed officials. The entire populace should experience equal access to the decision-making processes and mechanisms bearing on plan implementation anywhere within the region.

The tools that SCAG has to implement the goals of the RCP include Intergovernmental Program, Plan, and Project Review; Transportation Improvement Programming; the Regional Housing Needs Assessment; the Legislative Program; Alternative Dispute Resolution Processes; Memoranda of Understanding; Partnerships With Private Sector and Non-Profit Organizations; and Monitoring. These tools, and how they are to be used to implement the RCP, will be described later in this chapter. However, preceding that discussion are some examples of how the RCP might enhance the decision-making process by local governing bodies and other agencies.

C. IMPACTS ON LOCAL GOVERNMENT DECISIONS

The most frequent interaction between the RCP and local government actions are apt to be in the following program areas:

- General Plan updates and revisions.
- Housing element updates.
- Review of regionally significant general development projects.
- Programming transportation improvements.
- Applications for state or federal funds for infrastructure improvements.

¹ CEQA Guidelines §§15206, 15125(b); also Exec. Order No. 12,372 (1982)

- Design of water supply and wastewater treatment facilities.
- Formulation of local measures to address state or federal air quality requirements.
- Contracts or Memoranda of Understanding related to regional planning
- Development of partnerships, particularly with the private sector
- Resolution of planning and development disputes with other local jurisdictions.
- Monitoring and reporting progress on the implementation of programs related to the RCP.

In each of these program areas, it is likely that some contact will have been made with SCAG and/or a subregional agency to determine the relationship of the proposal to the RCP before it is placed on a local government agenda for a final decision.

D. IMPLEMENTATION TOOLS FOR EFFECTUATING THE RCP

The implementation tools described in this chapter do not create new legal mandates for local governments or other regional governmental organizations.

1. Intergovernmental Review

SCAG's long-established intergovernmental review procedures are routinely administered by professional staff. No changes in these responsibilities are envisioned in the immediate future. Intergovernmental Review staff will continue to assist cities, counties, and other agencies in the review of regionally significant plans, programs, and projects they submit.

The intergovernmental review procedures are based on various state and federal requirements. These requirements are intended to assist local government to ensure that local plans, programs, and projects contribute to the attainment of regional goals and policies and thereby strengthen the effectiveness of multi-jurisdictional decision-making. While much of the RCP will have a predominantly advisory status in the referral program, some parts are more than just advisory. For instance, the Regional Mobility chapter — which is the action portion of the Regional Transportation Plan under state and federal law² — will influence the expenditure of transportation funds. Other types of legislation, such as the California Environmental Quality Act³, serve to encourage the use of the regional plans to better inform the decision-makers on the probable areawide impacts of individual plans, programs, and projects.

a. California Environmental Quality Act Referrals

Draft environmental impact reports for projects of regional or areawide significance are referred to regional agencies, such as SCAG, for review and comment with respect to regional planning issues.⁴ The California Environmental Quality Act requires that the documentation for all projects or plans subject to environmental review must address consistency of the subject proposals with regional plans. SCAG is obligated to respond to lead agencies and project sponsors with comments and recommendations for plan and project revision or

² Cal. Gov't Code §65080; 23 U.S.C. §134(g), 49 U.S.C. §1607(g)

³ Cal. Pub. Res. Code §21000 et seq.

⁴ CEQA Guidelines §§15206, 15125(b)

mitigation to achieve consistency with regional plans. SCAG's objective in reviewing projects and plans is to work with the cities and counties to help them implement the requirements that are imposed by federal, state, and regional mandates.

b. Clearinghouse Function

SCAG is the authorized regional agency for intergovernmental review of programs proposed for federal financial assistance and direct federal development activities.⁵ When Southland cities and counties seek federal assistance for a project that will have measurable impact on the region's social, economic, or natural environment, the proposal must undergo project review by SCAG. The purpose of the review is to evaluate the proposals for consistency with grant requirements and regional planning goals based on the growth projected for the region and other factors. This process requires that SCAG — as an officially designated areawide clearinghouse — circulate information about proposed projects to local governments and agencies within the region. All comments that are received, together with SCAG's own comments, are passed along to the applicant, who then submits them to the funding agency with the application.

c. Conformity Review

As the Metropolitan Planning Organization for this region⁶, SCAG is required to determine conformity of certain types of plans, programs and projects with the applicable State Implementation Plan.⁷ The conformity criteria and procedures differ according to which of the region's three air basins is involved.

[Note: At present, these conformity procedures are being revised pursuant to newly issued federal rules. This work will culminate in the adoption of revised conformity criteria and procedures by SCAG's Regional Council at a later date. This section will be updated in the Proposed Plan.]

d. General Procedures for Project, Plan, and Program Review

When SCAG is analyzing a local general plan or a project of regional significance that has been submitted for review, special attention is given to the planning assumptions that underlie the plan or project. All planning assumptions related to estimates or projections of population, housing, employment, travel, and congestion should be consistent with the RCP.

The process for determining whether proposed growth is consistent with the RCP is outlined in Section G of this chapter. The objective is to encourage lead agencies to give adequate consideration to the goals, principles, and policies of the RCP regarding growth management and to interpret and apply the RCP to their individual proposals on a consistent basis.

2. Regional Transportation Programming

SCAG prepares the Regional Transportation Improvement Program (RTIP) in accordance with both federal and state laws in order to implement the goals of the regional transportation plan. It is a seven-year program

⁵ Exec. Order No. 12,372 (1982)

⁶ 23 U.S.C. §134(b)(1)

⁷ 42 U.S.C. §7506(c)

of regional transportation improvements for highways and transit that coordinates county and regional expenditures of federal, state, and local funds.⁸ SCAG must make a finding of conformity of the RTIP with the State Implementation Plan for Air Quality before submittal to federal agencies for approval. The RTIP serves as a project facilitator, a regional investment plan, and a mechanism for regional policy integration and implementation.

3. Regional Housing Needs Assessment

Pursuant to state law, SCAG prepares the Regional Housing Needs Assessment for use by local government.⁹ This tool provides a basis for achieving regional and subregional consensus on what constitutes an equitable five-year local housing strategy to meet market area needs as well as state mandates.

4. Legislative Program

The Regional Council may take policy positions on legislative and government affairs issues at the local, state and national levels, as appropriate, in order to carry out the policies and programs of the RCP. Upon request, SCAG will provide technical assistance to elected officials and their staffs by responding to requests for information, clarifying the intent of legislation in relation to the RCP, and explaining plan implementation problems and alternative solutions. Also, when appropriate, designated representatives will provide written legislative position papers and formal public testimony in the furtherance of the legislative program arising from the Plan. The authority for this legislative program is derived from SCAG's status as a Joint Powers Agency.¹⁰

5. Alternative Dispute Resolution

Alternative dispute resolution processes and procedures will be developed to allow for the resolution of conflicts over RCP implementation issues outside the court system. These dispute resolution processes, as described in the Strategy chapter, will seek consensual decision-making for all types of issues, thereby minimizing the potential for indecision and delay in plan implementation.

6. Memoranda of Understanding

It is expected that subregional agencies will continue to work closely with SCAG in the ensuing plan implementation and monitoring activities associated with this Plan. Most subregions or their representative parts have entered into Memoranda of Understanding (MOU) with SCAG proscribing the roles of SCAG and the subregion in the regional planning program and the scope of work for the subregion's contribution to the RCP.

Similar arrangements have been, and will continue to be, made with other regional agencies. For example, SCAG and the region's air districts maintain MOUs detailing cooperative planning relationships and requiring that regional growth forecasts be used in the development of all air district plans. This planning tool has

⁸ Cal. Gov't Code §65080; 23 U.S.C. §134(h), 49 U.S.C. §1607(g)

⁹ Cal. Gov't Code §65584(a)

¹⁰ Cal. Gov't Code §6502 et seq.

potential for more widespread application as the region progresses toward a more inclusive style of decision-making.

7. Partnerships With Private Sector and Non-Profit Organizations

In order for plan implementation efforts to be truly successful in meeting the objectives of the RCP, it is necessary to engage private sector and non-profit organizations in partnership arrangements with local and state government. This theme is often repeated throughout the RCP. The Air Quality chapter states that SCAG and the air districts should involve private sector interests in all phases of the decision-making process. The Housing chapter details the needed actions by builders, non-profits, construction unions, banks, community, and neighborhood organizations. The Transportation chapter points to the need to involve the private sector and non-profit agencies in providing innovative technological means to reduce vehicular emissions. These are but a few of the illustrations that could be cited. In reality, without the forging of new partnerships and new working arrangements of this sort, no amount of plan implementation effort is likely to achieve the desired results.

8. Monitoring Program

a. Purpose

The development of a Regional Monitoring Program is a vital element in the attainment strategy for the RCP. This program will communicate the RCP's effectiveness in guiding and influencing development within the framework of regional goals and policies. It will serve as a hearing aid for listening and learning what is happening at the local level. It will also fulfill state and federal monitoring mandates, and track the capacity of the region's resources in relation to growth trends. The mitigation measures in the RCP's Environmental Impact Report (EIR) will be monitored and policy-makers will be alerted to the need for corrective actions. Of particular importance is that this program will enable SCAG to maintain the Master Environmental Assessment for the RCP as a viable document for tiering purposes (the tiering concept is described in Section E of this chapter). Fundamental to the Monitoring Program is the development of a comprehensive database and monitoring indicators to measure and report on local and regional changes over time. Subregional entities will be directly involved in monitoring change through data reporting, reviewing local plan implementation, and participating in the review and updating of regional policies.

The regional monitoring program has three aspects — policy, planning, and administrative. The policy dimension is to assess the effectiveness of RCP policies on both the subregional and regional levels, and to measure the realization of RCP objectives in the areas of growth, mobility, air quality, housing affordability, and economic development. The planning dimension would be structured to analyze the interrelationships among the RCP Elements, and track development trends. Finally, the administrative aspect of the program should further improve the Intergovernmental Review process by providing better information on regionally significant plans and projects. Essentially, the Monitoring Program will track the mitigation measures included in the RCP EIR and provide the means for sustaining the tiering capability of the RCP EIR. This approach should allow local jurisdictions to garner substantial cost reductions for the environmental assessment of local projects.

b. Uniform Coordinated Effort

One objective of the Regional Monitoring Program will be to minimize the duplication of reporting pursuant

to state and federal report mandates.¹¹ A regular reporting schedule will be established as one means of eliminating redundancy and reducing the time and effort of local jurisdictions and other agencies in producing reports.

For the Regional Monitoring Program, the following existing mandated reports will assist in addressing the effectiveness of the RCP policies and elements. Under the federal Clean Air Act, as amended in 1990, SCAG is required to make a conformity determination on the "timely implementation" of the Transportation Control Measures for the applicable State Implementation Plans for all air basins in the region as part of SCAG's Regional Transportation Plan and Regional Transportation Improvement Program.¹² The federal Clean Air Act also requires that reports on Vehicle Miles Travelled be prepared to assess the effectiveness of SCAG's regional air quality and transportation plans. Accordingly, SCAG will prepare a Vehicle Miles Travelled Forecast and Annual Report that will contain an annual forecast update of Vehicle Miles Travelled in the non-attainment areas of the region.

The Intermodal Surface Transportation Efficiency Act of 1991 mandates the development and maintenance of several transportation management systems for the region.¹³ Several of these systems are identified as shared responsibilities for the state and the Metropolitan Planning Organization. Therefore, SCAG may have some responsibility for preparing reports related to these systems. Additionally, SCAG is responsible for monitoring compliance of Congestion Management Plans with the California congestion management program.¹⁴

c. Updating the RCP Database

Central to the monitoring function is the RCP Database, which will receive information using specially selected indicators. These indicators will be designed to measure changes in the quality of life in Southern California as the RCP is implemented. The database will define the extent and scope of the monitoring effort as it will be the central receiving mechanism within SCAG for information obtained from the Intergovernmental Review process, Master Environmental Assessment Database, the RCP EIR, and related functions. The Regional Monitoring Program will also gather information from the subregional agencies and other sources, and then provide the participating agencies with access to the monitoring database.

d. Implementing the Monitoring Program

The implementation of the Regional Monitoring Program will be phased in during a period of years. The initial effort will involve the development of a standardized body of information to guide the subregional effort and ensure the compatibility of data collected through the subregional effort. A Regional Monitoring Working Group will be established with membership from every subregion to reach a consensus on data collection as well as to establish a computer network to ultimately provide direct input and access to the Regional Database.

An example of a subregional monitoring program is the proposal of the Western Riverside Council of

¹¹ Input from the Westside Cities, October 18, 1993, pp. 5 and 6.

¹² 42 U.S.C. §7506(c)

¹³ 23 U.S.C. §101 et seq.

¹⁴ Cal. Gov't Code §65089.2

Governments (WRCOG) to establish a pilot program for the western cities of Riverside County.¹⁵ This program attempts to facilitate local jurisdictional compliance with the mobile emission requirements of the 1991 AQMP. The program proposes the following three components: (1) It would provide a methodology for integrating regional land use, transportation, and air quality requirements into a comprehensive subregional plan of action to meet proposed Vehicle Trip and Vehicle Miles Travelled reduction targets; (2) it would establish a method to measure progress toward attainment of those Vehicle Trip/Vehicle Miles Travelled reduction targets; and, (3) it would apply the methodologies and approaches developed to a defined geographical territory within the WRCOG area.

E. STREAMLINING IMPLEMENTATION PROCEDURES USING REGIONAL GOALS AND POLICIES

SCAG is committed to streamlining implementation procedures of the RCP and other plans and programs where it can play a constructive role. The Plan itself provides useful guidance in this regard. It is particularly fitting that "red-tape-cutting" tools be used to assist the so-called communities-in-need identified in Chapter 7.¹⁶ These are the areas scattered throughout the region that are experiencing high levels of unemployment, poverty, low educational achievement, etc. It is in such areas where various administrative procedures often appear to be most inappropriate and to conflict with the goal of achieving greater equity among communities. The following section outlines six streamlining programs that merit further consideration.

1. On-going Procedures for Simplifying the EIR and the Development Permitting and Approval Processes

a. Using the Master Environmental Assessment as the Basis for Tiered Environmental Impact Reports

The California Environmental Quality Act (CEQA) and various provisions of the *CEQA Guidelines* authorize the use of the RCP EIR for documenting regional impacts of successive discretionary projects (such as local general plan updates or general development projects) in order to simplify environmental review.¹⁷ This is known as "tiering". Through tiering, the environmental review for a subsequent project can be limited to the additional significant effects and site specific impacts that were not examined in the RCP EIR.

Normally, most of the regional-level environmental impacts of a project will have already been addressed in the RCP EIR, if the project is consistent with the RCP. If that is not the case, or if there are local or site specific impacts that were not addressed in the RCP EIR, only those unique effects would have to be addressed in a supplemental EIR.

¹⁵ Subregional input from the Western Riverside Council of Governments

¹⁶ Subregional input

¹⁷ CEQA Guidelines §15152

The *CEQA Guidelines* require that any EIR or negative declaration using the tiering principle must refer to the prior EIR, state where copies may be examined, and state that tiering is being used. Tiering may not be employed when the project is inconsistent with the RCP, the local general plan or zoning. Also, the EIR for the RCP may not be an adequate foundation for tiering an Environmental Impact Statement prepared pursuant to the requirements of NEPA.

Overall, use of this tiering procedure could result in significant cost savings to local governments because it has the potential to reduce redundancy, simplify the process, and save time and effort in preparing EIRs.

b. Encouraging Innovative Approaches to Regulation

SCAG will continue to work with public and private sector groups that are developing and encouraging innovative approaches to regulation which result in the simplification of complex and time-consuming procedures. This could involve the preparation of model codes and guidelines.

c. Data Support for Planning and Project Approval

SCAG will continue to provide data support, on a cost-recovery basis, to public and private sector agencies for planning and project review and approval purposes.

2. Other Streamlining Programs Under Consideration

[Note: SCAG has a task force that is considering other programs that have been suggested for streamlining the project review and permit approval process. These suggestions will undergo further review before being recommended for action. This section will be updated in the Proposed Plan.]

a. Raising Thresholds for Ministerial Projects

SCAG supports the adoption of ordinances and other local land use regulation measures that reduce the bureaucratic system that may stifle new development. One way to accomplish this is to adopt a streamlining ordinance that raises the threshold levels for ministerial projects. Currently, in many jurisdictions discretionary project review involves examination by committees, the planning commission, and the city council. This is often a time consuming process taking many months, if not several years. The purpose of a streamlining ordinance is to clearly identify project requirements, which would reduce development review to a pre-plan check process by staff to ensure code compliance. In addition, if a proposed project falls under ministerial review, it would be exempt from the California Environmental Quality Act requirements. However, if a project is determined to be of statewide, regional, or areawide significance, then the project would be required to undergo environmental assessment. To assist local jurisdictions, SCAG will attempt to develop threshold levels or a process to develop them.

It is important to recognize that the development of a streamlining ordinance by a local jurisdiction cannot be done in isolation. The underlying foundation for raising threshold levels is a solid base of long-range planning and consistency with the plans and policies contained in the RCP. This base, coupled with a team approach among city departments that is conducive to frequent and open communication, will help to achieve successful results.

b. Confronting Adverse Cost-Benefit Effects of New Programs

In addition to the usual contents of a program EIR, studies of the impacts of any new significant programs involving rules or regulations may need to include an analysis of the influence on the economy of the region and on job creation. Economic considerations are already included to some degree in many rule-making programs. However, they are not always given enough emphasis, considering the condition of the region's economy. SCAG encourages local jurisdictions to pay particular attention to the costs and benefits of project related recommendations. Although in-depth cost-benefit analyses are not always possible for every project recommendation, careful examination of both short and long-term benefits and costs are important for every jurisdiction. In order to facilitate successful analyses, SCAG encourages the formation of cost-benefit checklists specifically tailored to local jurisdictions. By using such a checklist during project review, a rough estimate of local and regional economic impacts can be examined. The systematic inclusion of economic issues and cost-benefit effects in future studies of proposed programs, projects, rules, and regulations can be used to determine whether such proposals are truly worthwhile. Proposals of this type that would adversely affect the local or regional economy should be revised or discarded.

c. Point Persons For Promoting Economic Vitality

SCAG could be directed to designate "point persons" who would assist in coordinating contacts between local officials and federal, state, regional, and subregional authorities in order to expedite action on permits for development of beneficial local projects and/or the promotion of cluster industries. In certain instances, this assistance might involve intergovernmental mediation on behalf of major projects that would promote the goals of the RCP.

3. Certification Process For Local General Plans

a. Expedited Review of Regionally Significant Projects

As previously indicated, SCAG has the responsibility, under provisions of the California Environmental Quality Act, for reviewing localities' general development projects and plans of regional significance to determine consistency with regional goals and objectives. A process to expedite this review was first established by the Air Quality Management Plan for the South Coast Air Basin in 1991. It was further detailed in guidance adopted by SCAG's governing body in 1992.¹⁸ The procedure provides that, if localities within the South Coast Air Basin adopt air quality elements and revise their general plans to be consistent with regional plans, these jurisdictions can then be certified to review their own local projects against their general plans rather than waiting for review at the regional level. In this Plan, the concept has been broadened to encourage the harmonization of entire local plans with the RCP throughout the region. SCAG will continue to certify participating cities and counties to review their local projects in relation to their own general plans rather than waiting for review with the RCP at the regional level. The review and approval process for projects can be accelerated in this way and the results should be equally beneficial from the regional standpoint. Property owners and developers should also benefit from this expedited project approval process. A more complete discussion of these procedures is provided in Section H of this chapter.

¹⁸ *Criteria for Reviewing and Certifying Local General Plan Provisions and/or Action Plans Which Implement the Air Quality Management Plan*, August 6, 1992.

b. Future Study of Delegating Additional Implementation Responsibilities to Subregions

Although the certification procedure has undergone expansion in this plan, further streamlining and simplification may be possible. If widespread acceptance of the concept is realized, the harmonization of local plans with regional plans could become one of the primary mechanisms for implementation of the RCP. Eventually, it is proposed that, as memoranda of understanding are developed with subregional agencies and with local government, and as consistency is developed between subregional plans and the RCP, additional aspects of the Intergovernmental Review function could be decentralized to the subregions. Subregional agencies could subsequently be involved in the "certification" of local general plans provided that the individual agency had a Memorandum of Understanding with SCAG for that purpose and could be held accountable for fulfilling its agreements. Subregions would then become directly involved in the making of consistency determinations for projects of regional significance. It has been suggested that the "certification" concept be extended to encompass a four-tier structure.

- Cities and counties adopt general plans that are consistent with the RCP and subregional plans.
- Subregional agencies certify consistent local general plans.
- SCAG certifies subregional plans that are consistent with the RCP.
- Region uses unified RCP approach in resolving any conflicts between higher-level (federal and state government) mandates and local goals and policies.

Thereafter, SCAG, subregions, and local government would endeavor to jointly expedite conforming projects without further review by other governmental agencies. However, due to the many complex variables involved, the design and full implementation of this program could take an extended period of time to accomplish.

F. RCP UPDATING PROCESS

As stated in the Strategy chapter, the RCP is not a static document. It will evolve over time through regular updating and amendment. The updating process is expected to be flexible and dynamic — changing over time in response to demand. This will provide opportunity to evaluate progress in implementing the strategies and programs of the Plan and to refine various Regional Council policies.

The impetus for plan revision may come from various sources. SCAG's on-going relationship with subregional agencies will produce additional reports containing analyses and recommendations for plan amendments. Also, it is expected that, as each of these participants becomes more involved in the plan implementation process, new insights will be gained and this too may result in reexamination of some aspects of the Plan. For instance, an analysis of development trends may raise concern regarding the region's progress in achieving economic and other primary goals established in the Plan. Some of the goals or plan implementation procedures will undoubtedly require modification from time-to-time. The Monitoring Program should be particularly valuable in alerting decision-makers to circumstances necessitating plan review and revision.

For any amendment to the Plan, public participation and intergovernmental coordination will occur at every stage of the process. There will be a public outreach program that has sufficient depth and breadth to meet all state and federal public participation rules and requirements. Also, all of the relevant provisions of the California Environmental Quality Act will be integrated with the process at each step of the way.

[Note: The Mobility chapter, which constitutes the action portion of the Regional Transportation Plan, is subject to a complex multiplicity of state and federal rules. For that reason, a different set of procedures and schedules may govern with respect to amendments to that chapter.]

G. CONSISTENCY STANDARDS AND PROCEDURES FOR PROJECT, PLAN, AND PROGRAM REVIEW

When SCAG is reviewing a local general plan, a project or program of regional significance, special attention will be given to the planning assumptions that underlie the plan or project. All planning assumptions related to estimates or projections of population, housing, employment, travel, and congestion should be derived from the RCP.

The steps for reviewing regionally significant projects, plans or programs (hereafter called 'projects') for consistency with the goals, principles, and policies of the RCP are as follows:

- Determine whether the regionally significant project is in a jurisdiction and a subregion that are implementing the RCP (as shown by SCAG's Monitoring Program and by the Draft EIR for the project).
 - Lead agencies should approve growth proposals only in areas where the RCP is being implemented. It is doubtful that projects can be considered to be consistent with the RCP in areas where the RCP is not being implemented.
- Determine whether the project is consistent with the assumptions, policies and programs of the RCP.
- Determine whether the growth associated with the project is consistent with the amount of growth forecasted in the appropriate subregion and local area and with the growth management policies and assumptions of the RCP.
 - This step is designed to reveal whether the projected growth is consistent with the growth assumed in the RCP and also consistent with the trips and Vehicle Miles Travelled projected for that area.
- If a project is found to be consistent with these checks, then it will be determined to have consistent demographic impacts. However, if one or more of the factors (population, housing, or employment) has surpassed its forecasted level, then more detailed analysis will be triggered to determine the significance of the difference.
- Determine whether sufficient mitigation measures have been proposed to offset project-related impacts to a level that is consistent with the growth forecasts. If the project is found to have a negative impact on the attainment of regional goals, policies or objectives, then SCAG staff will recommend either revision of the project or development of sufficient mitigation to offset the negative impact. The cumulative impacts obtained from the monitoring system could also influence this determination.
- SCAG staff will consult with the appropriate SCAG policy committee(s) regarding those major projects that raise significant policy issues. The objective of this step is to ensure that SCAG staff is

correctly interpreting and applying the goals, objectives, and policies of the RCP.

H. PROCEDURES FOR EXPEDITING REVIEW OF REGIONALLY SIGNIFICANT GENERAL DEVELOPMENT PROJECTS

The RCP provides encouragement for local jurisdictions to blend their general plans with SCAG's regional plans. It is desirable that local plans be aligned with the RCP so they incorporate regional goals and standards in addition to their responses to local issues. Local general plans should establish procedures for the determination of consistency of plan from an intergovernmental point of view. The goals, standards, and procedures of local general plans pertaining to regional issues should be made to be at least as effective as those in regional plans. As an incentive to encourage local government to join SCAG in this effort, a procedure has been developed to certify consistent general plans and to provide for local review of general development projects of regional significance for consistency with the RCP.

The criteria for localities wanting to perform consistency review of their own general development projects is as follows: (1) review of the local general plan to confirm consistency with the RCP; (2) affirmation of internal general plan consistency; (3) commitment by the jurisdiction to implement its general plan consistent with regional goals and objectives; (4) provision of schedules, staff responsibilities and adequate project review procedures for plan implementation; and (5) participation in monitoring and reporting on expeditious implementation of air quality measures identified for implementation by local government.

SCAG will review local general plan amendments and updates, and provide guidance on how best to adapt regional goals, standards, and procedures to local conditions. If modification of a general plan is required, SCAG will offer to provide assistance in formulating the modification. When agreement has been reached, SCAG will formally authorize the jurisdiction to conduct its own local conformity and consistency reviews.

Authorization requires these steps: A city or county uses a worksheet provided by SCAG to provide documentation that the criteria have been met. The completed worksheet is approved by the jurisdiction's governing body, or by the mayor or chief administrative officer, and returned to SCAG. SCAG staff reviews the worksheet, the documentation, and any other relevant material, and makes a recommendation as to whether the jurisdiction's general plan has been harmonized with regional plans, and whether the jurisdiction is prepared to perform local conformity and consistency reviews. If policy issues are involved, SCAG's plan implementation policy committee will be consulted. If the request is approved, the jurisdiction is then notified of this action. At that point, the jurisdiction can begin to exercise its authority to review its own general development projects for consistency with regional plans, reporting its actions annually to SCAG.

SCAG's role then shifts from reviewing individual projects to reviewing updates of general plans, and to monitoring plan implementation to assure that projects, as approved and built, cumulatively achieve the desired results for air quality and other regional goals and objectives. SCAG will also look for assurance that conformity with the respective Air Quality Management Plan, and consistency with the RCP, is maintained. Periodic reviews will be made of localities' progress in implementing the provisions of the RCP and the respective Air Quality Management Plan, including a review of the locality's actions in approving general development projects. As long as the jurisdiction remains eligible to conduct its own conformity and consistency reviews, SCAG will not review individual projects. But, as would be expected, SCAG will continue to review individual projects of regional significance in jurisdictions whose general plans are not consistent with regional goals and standards.

APPENDICES

APPENDIX A

MEMBERSHIP OF SUBREGIONS

1. **Arroyo Verdugo**

County of Los Angeles, Burbank, Glendale, La Canada Flintridge, Pasadena, South Pasadena

2. **City of Los Angeles**

County of Los Angeles, City of Los Angeles

3. **Coachella Valley Association of Governments (CVAG)**

County of Riverside, Blythe, Cathedral City, Coachella, Desert Hot Springs, Indio, Indian Wells, La Quinta, Palm Desert, Palm Springs, Rancho Mirage

4. **Imperial Valley Association of Governments (IVAG)**

County of Imperial, Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, Westmorland

5. **North Los Angeles County**

County of Los Angeles, Lancaster, Palmdale, Santa Clarita

6. **Orange County**

County of Orange, Anaheim, Brea, Buena Park, Costa Mesa, Cypress, Dana Point, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, Irvine, Laguna Beach, Laguna Hills, Laguna Niguel, La Habra, Lake Forest, La Palma, Los Alamitos, Mission Viejo, Newport Beach, Orange, Placentia, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Stanton, Tustin, Villa Park, Westminster, Yorba Linda

7. **San Bernardino Associated Governments (SANBAG)**

County of San Bernardino, Adelanto, Apple Valley, Barstow, Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Hesperia, Highland, Loma Linda, Montclair, Needles, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Upland, Victorville, Yucca Valley, Yucaipa

MEMBERSHIP OF SUBREGIONS (continued)

8. **San Gabriel Valley Association of Cities**

County of Los Angeles, Alhambra, Arcadia, Azusa, Baldwin Park, Bradbury, Claremont, Covina, Diamond Bar, Duarte, El Monte, Glendora, Industry, Irwindale, La Puente, Laverne, Monrovia, Monterey Park, Pasadena, Pomona, Rosemead, San Dimas, San Gabriel, San Marino, Sierra Madre, South El Monte, Temple City, Walnut, West Covina

9. **South Bay Cities Association**

City of Los Angeles, County of Los Angeles, Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lomita, Manhattan Beach, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Torrance

10. **Southeast Los Angeles County (SELAC)**

County of Los Angeles, Artesia, Bell, Bellflower, Bell Gardens, Cerritos, Commerce, Compton, Cudahy, Downey, Hawaiian Gardens, Huntington Park, Lakewood, La Habra Heights, La Mirada, Long Beach, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Signal Hill, South Gate, Vernon, Whittier

11. **Ventura Council of Governments**

County of Ventura, Agoura Hills, Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buena Ventura, Santa Clarita, Santa Paula, Simi Valley, Thousand Oaks, Westlake Village,

12. **Western Riverside Council of Governments (WRCOG)**

County of Riverside, Banning, Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto, Temecula

13. **Westside Cities**

County of Los Angeles, Beverly Hills, Culver City, Santa Monica, West Hollywood

NOT CURRENTLY WITHIN SUBREGIONAL ORGANIZATIONS:

Avalon, Calabasas, Hidden Hills, Malibu, San Fernando

RCP SUBREGIONAL INPUT BY COMPONENT

	Arroyo Verdugo	CVAG	IVAG	City of L.A.	No. LA County	Orange	SANBAG	San Gabriel	SELAC	So. Bay	VCOG	WRCOG	West- side
Strategy		C	C	C	B		D			B			C
The Economy	A			C	B			A	B	B		A	C
Growth Mgmt/Forecast	A	C	C	C	B	D	D	A	B	B	A	A	C
Mobility	A	C		C	B	D	D	A	B	B	A	A	C
Air Quality		C	C	C	B	D	D	A		B	A	A	C
Housing	A	C	C	C	B	D	D	A	B	B	A	A	C
Human Res./Serv.		C							B		A		
Finance								A	B				
Open Space/Res.			C	C							A	A	
Water Resources									B		A	A	
Water Quality									B				
Energy													
Hazardous Waste			C	C					B				
Solid Waste		C									A	A	

- A. Subregional Plan submitted; Arroyo Verdugo submitted local policies for each city.
- B. Comments only submitted; Subregional Plan is being prepared and will be included in the Final RCP.
- C. Comments only submitted.
- D. Submitted comments only for preliminary Discussion Document; no comments submitted for Draft RCP.

APPENDIX B

ACRONYMS AND ABBREVIATIONS

208	EPA WATER QUALITY MANAGEMENT PROGRAM
A-95	FEDERAL REQUIREMENTS FOR REVIEW OF PROPOSED GRANT APPLICATIONS [(REPEALED; NOW EXEC. ORDER NO. 12,372)(1982)]
AB1246	BILL ESTABLISHING COUNTY TRANSPORTATION COMMISSIONS AND SCAG CON- VENED MEETING PROCESS
ABAG	ASSOCIATION OF BAY AREA GOVERNMENTS
APCD	AIR POLLUTION CONTROL DISTRICT
AQMD	AIR QUALITY MANAGEMENT DISTRICT
AQMP	AIR QUALITY MANAGEMENT PLAN
ARB	AIR RESOURCES BOARD (STATE)
ATAC	AVIATION TECHNICAL ADVISORY COMMITTEE
AVO	AVERAGE VEHICLE OCCUPANCY
AVR	AVERAGE VEHICLE RIDERSHIP
BIA	BUILDING INDUSTRY ASSOCIATION
BLM	BUREAU OF LAND MANAGEMENT (FEDERAL)
CAA	CLEAN AIR ACT (FEDERAL)
CALCOG	CALIFORNIA ASSOCIATION OF COUNCILS OF GOVERNMENT
CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION
CBD	CENTRAL BUSINESS DISTRICT
CCAA	CALIFORNIA CLEAN AIR ACT (SHER BILL) STATS. 1988, CH. 1568
CEHD	COMMUNITY, ECONOMIC AND HUMAN DEVELOPMENT COMMITTEE (SCAG)
CEQA	CALIFORNIA ENVIRONMENTAL QUALITY ACT
CMA	CONGESTION MANAGEMENT AGENCY

CMAQ	CONGESTION MITIGATION AIR QUALITY FUNDS (ISTEA)
CMP	CONGESTION MANAGEMENT PROGRAM
CO	CARBON MONOXIDE
COG	COUNCIL OF GOVERNMENTS
CSAC	CALIFORNIA STATE ASSOCIATION OF COUNTIES
CTC	CALIFORNIA TRANSPORTATION COMMISSION
CTS	COMMUTER TRANSPORTATION SERVICES (COMMUTER COMPUTER)
CVAG	COACHELLA VALLEY ASSOCIATION OF GOVERNMENTS
DOF	DEPARTMENT OF FINANCE (STATE)
DOT	DEPARTMENT OF TRANSPORTATION (FEDERAL)
EEC	ENERGY AND ENVIRONMENT COMMITTEE (SCAG)
EIR	ENVIRONMENTAL IMPACT REPORT (STATE)
EIS	ENVIRONMENTAL IMPACT STATEMENT (FEDERAL)
EPA	ENVIRONMENTAL PROTECTION AGENCY
FAA	FEDERAL AVIATION ADMINISTRATION
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FIP	FEDERAL IMPLEMENTATION PLAN (AIR QUALITY)
FRA	FEDERAL RAILROAD ADMINISTRATION
FTA	FEDERAL TRANSIT ADMINISTRATION
HCD	DEPARTMENT HOUSING AND COMMUNITY DEVELOPMENT (STATE)
HHS	DEPARTMENT HEALTH AND HUMAN SERVICES (FEDERAL)
HOV	HIGH-OCCUPANCY VEHICLE
HUD	(DEPARTMENT OF) HOUSING AND URBAN DEVELOPMENT (FEDERAL)
IGR	INTERGOVERNMENTAL REVIEW
ISTEA	INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

IVAG	IMPERIAL VALLEY ASSOCIATION OF GOVERNMENTS
LACAPO	LOS ANGELES COUNTY ASSOCIATION OF PLANNING OFFICIALS
LACC	LOCAL ASSISTANCE COMPLIANCE COMMITTEE (SCAG)
LAFCO	LOCAL AGENCY FORMATION COMMISSION
LAMTA	LOS ANGELES METROPOLITAN TRANSIT AUTHORITY
LEWIS-PRESLEY	STATE STATUTE CREATING SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) AND SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) AIR QUALITY RESPONSIBILITIES
MOU	MEMORANDUM OF UNDERSTANDING
MPO	METROPOLITAN PLANNING ORGANIZATION
MTC	METROPOLITAN TRANSPORTATION COMMISSION (BAY AREA)
MWD	METROPOLITAN WATER DISTRICT (SOUTHERN CALIFORNIA)
NAAQS	NATIONAL AMBIENT AIR QUALITY STANDARDS
NARC	NATIONAL ASSOCIATION OF REGIONAL COUNCILS
NEPA	NATIONAL ENVIRONMENTAL POLICY ACT
NHS	NATIONAL HIGHWAY SYSTEM
NLC	NATIONAL LEAGUE OF CITIES
NOP	NOTICE OF PREPARATION
NO_x	NITROGEN OXIDES
O₃	OZONE
OCTA	ORANGE COUNTY TRANSPORTATION AUTHORITY
OMB	OFFICE OF MANAGEMENT AND BUDGET (FEDERAL)
OPR	OFFICE OF PLANNING AND RESEARCH (STATE)
OWP	OVERALL WORK PROGRAM
PM-10	PARTICULATE MATTER
PUC	PUBLIC UTILITIES COMMISSION (STATE)

RAC	REGIONAL ADVISORY COUNCIL
RCP	REGIONAL COMPREHENSIVE PLAN
RCTC	RIVERSIDE COUNTY TRANSPORTATION COMMISSION
RFP	REQUEST FOR PROPOSAL OR REASONABLE FURTHER PROGRESS (AIR QUALITY)
RHNA	REGIONAL HOUSING NEEDS ASSESSMENT
RISC	REGIONAL INSTITUTE OF SOUTHERN CALIFORNIA
RME	REGIONAL MOBILITY ELEMENT (SEE RTP) (SCAG)
ROG	REACTIVE ORGANIC GASES
RTA	RIVERSIDE TRANSIT AGENCY
RTIP	REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM
RTP	REGIONAL TRANSPORTATION PLAN
RTPA	REGIONAL TRANSPORTATION PLANNING AGENCY
RWQCB	REGIONAL WATER QUALITY CONTROL BOARD
SANBAG	SAN BERNARDINO ASSOCIATED GOVERNMENTS
SANDAG	SAN DIEGO ASSOCIATION OF GOVERNMENTS
SCAB	SOUTH COAST AIR BASIN
SCAG	SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
SCAQMD	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
SCHWMA	SOUTHERN CALIFORNIA HAZARDOUS WASTE MANAGEMENT AUTHORITY
SCRRA	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
SCRTD	SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
SEDAB	SOUTHEAST DESERT AIR BASIN
SELAC	SOUTHEAST LOS ANGELES COUNTY
SIP	STATE IMPLEMENTATION PLAN (AIR QUALITY)

SRTP	SHORT RANGE TRANSPORTATION PLAN
STIP	STATE TRANSPORTATION IMPROVEMENT PROGRAM
STP	SURFACE TRANSPORTATION PROGRAM (ISTEA)
SWRCB	STATE WATER RESOURCES CONTROL BOARD
TCC	TRANSPORTATION AND COMMUNICATIONS COMMITTEE (SCAG)
TCM	TRANSPORTATION CONTROL MEASURE
TDA	TRANSPORTATION DEVELOPMENT ACT
TIP	TRANSPORTATION IMPROVEMENT PROGRAM
VAPCD	VENTURA AIR POLLUTION CONTROL DISTRICT
VCTC	VENTURA COUNTY TRANSPORTATION COMMISSION
VMT	VEHICLE MILES TRAVELED
WRCOG	WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS

ACKNOWLEDGMENTS

The following groups and consultants are recognized for their participation, cooperation, and support, which facilitated the overall development of the various chapters in the Regional Comprehensive Plan:

Bureau of Land Management
California Energy Commission
Dick Crowe, Bureau of Land Management
Economic Development Corporation (EDC) of Los Angeles County
EPICS International
Hamilton, Rabinovitz & Alschuler
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Inland Empire Economic Partnership
JHA Environmental Consultants, Inc.
Los Angeles Area Chamber of Commerce
Metropolitan Water District
Partnership 2010
The Planning Center
Regional Growth Management Working Group
Regional Housing Needs Assessment Subcommittee
Regional Mobility Working Group
Sedway Cooke Associates
Southern California Edison
Southern California Hazardous Waste Management Authority
Urban Innovations Group
2000 Regional Partnership (Formerly Regional Institute for Southern California, or RISC)

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